ENGINEERING NEWS-RECORD

★ Bore-pack bottom stretch gets size (p.32)

★ Expanding airbase to two-wing size (p.36)

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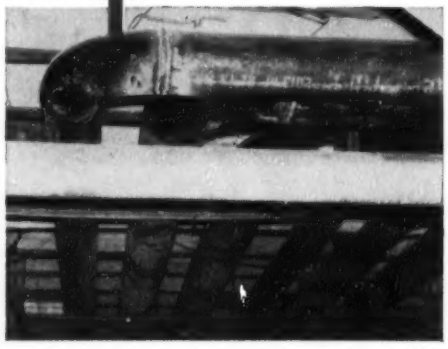

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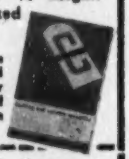

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Robert F. Boger
PUBLISHER

September 23, 1954 ENGINEERING NEWS-RECORD Vol. 153, No. 13

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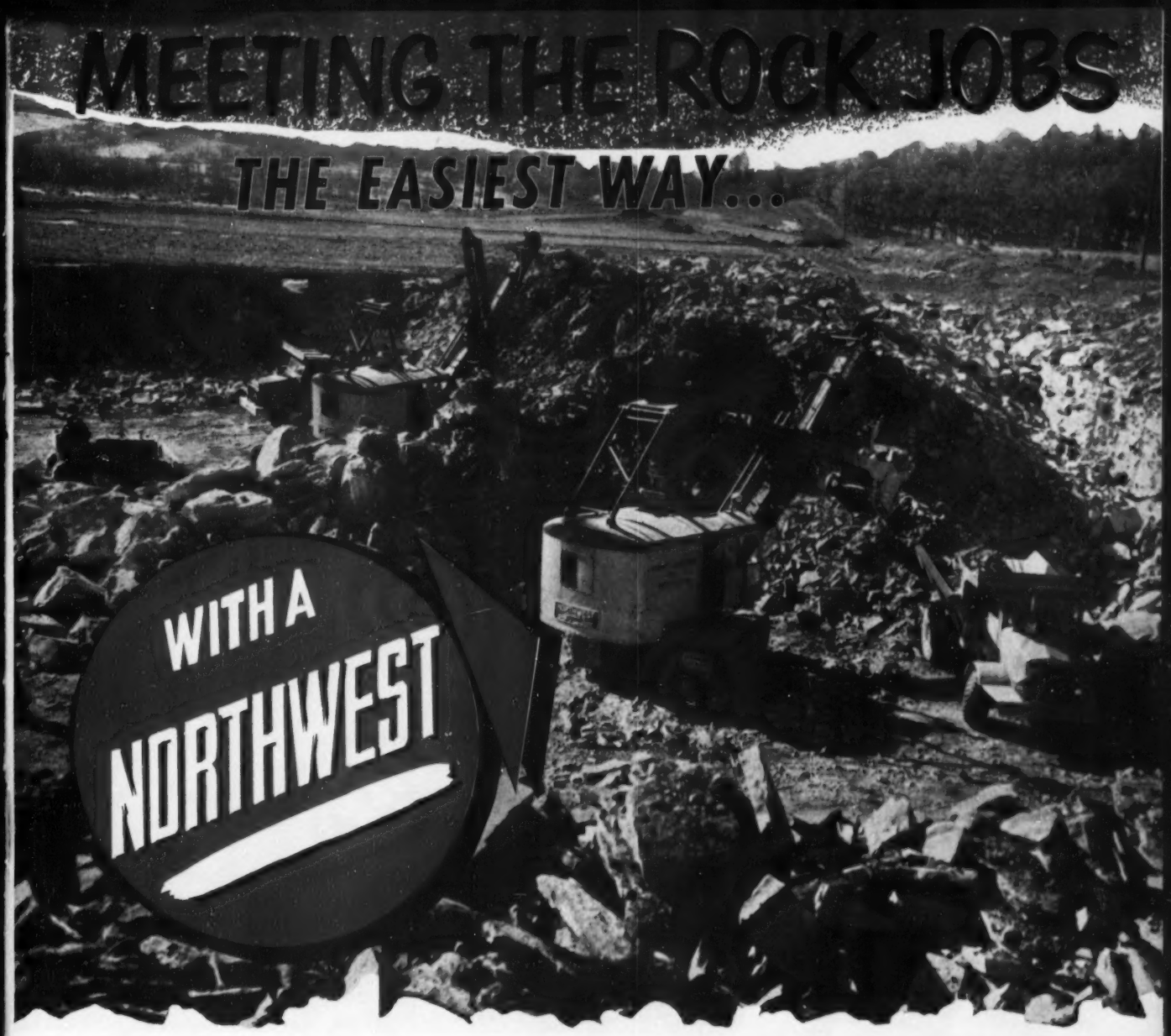
MEETING THE ROCK JOBS THE EASIEST WAY...



● Look at that Rock Pile! Ability to handle stuff like this is what backs up our statement, "that when you have a Northwest you have a *real* Rock Shovel." Performance in digging like this makes repeat orders, and repeat orders mean satisfaction.

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We can get more copper than we now have. Although industry and government have been consuming more copper than in any previous peacetime period, production has kept pace with this increased demand. And producers are not working at full capacity!

More copper keeps on coming. Eleven major new projects in the U. S. will start producing in the next 3 years. These mines will add 250,000 tons to our annual production—more than *¼ of all the domestic copper mined during 1953*. In addition, recent improvements in mining techniques now make it possible to obtain copper from ores considered commercially unworkable in the past.

Copper is virtually indestructible. At least 3 out of every 4 pounds of copper used in today's products, when scrapped, can be re-used in the future. Every day we are adding to our "copper capital". The more copper we use . . . the more we have!

Copper or its alloys provide these advantages . . .

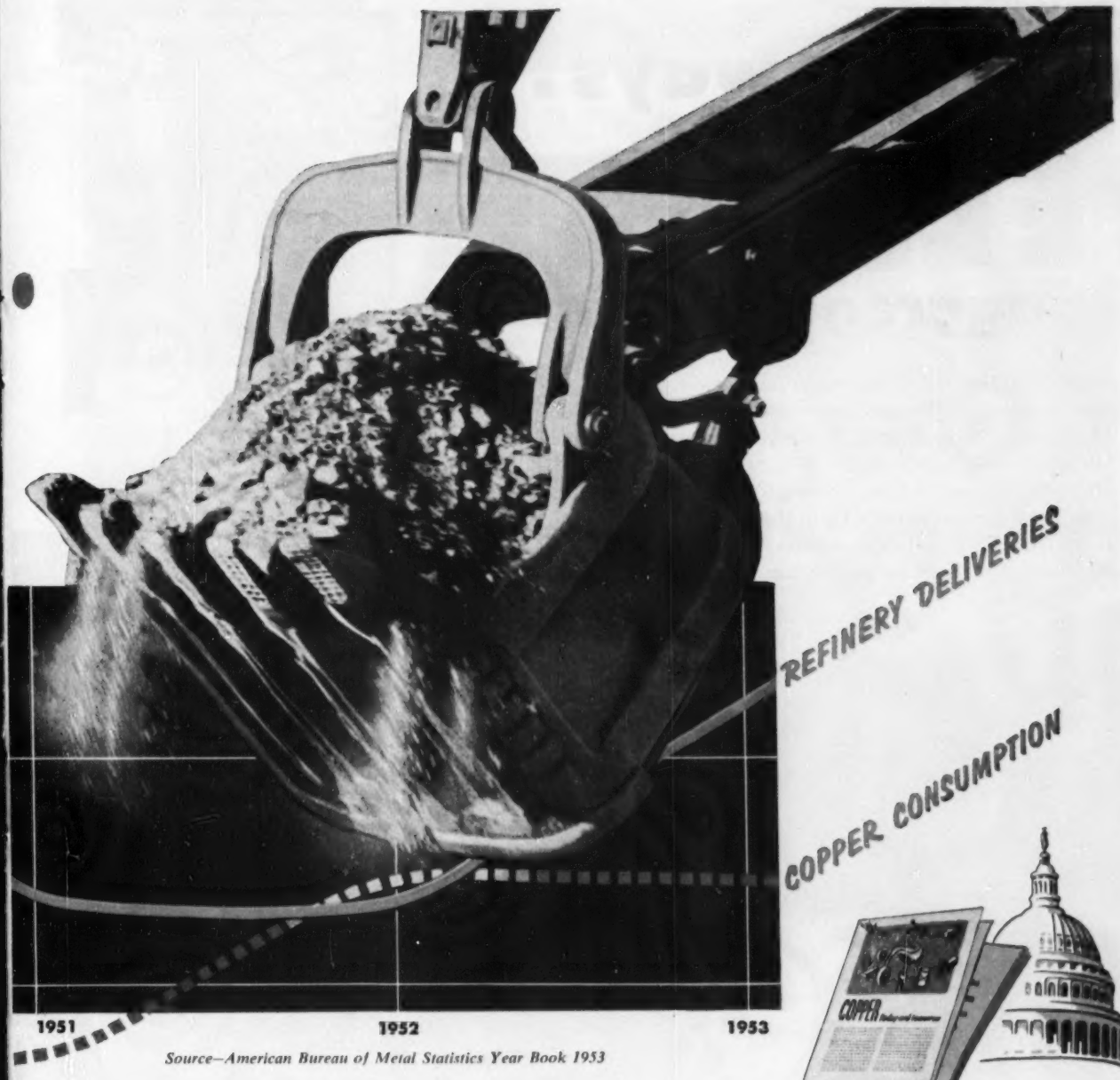
Best conductor of electricity commercially available.

Does not rust . . . high corrosion resistance.

Best heat transfer agent of all commercial metals.

Easy to machine, form, draw, stamp, polish, plate, etc.

Welds readily . . . excellent for soldering and brazing.



Source—American Bureau of Metal Statistics Year Book 1953

Copper has a new ability to serve you. Many of your problems are being solved in the laboratories of the copper and brass industry. Whether it's a new alloy, a different temper or a special property . . . copper can help you develop new ideas. Copper can bring old methods up to date. Call a supplier of copper and brass and convert your thoughts to action!

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Research Association

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Foreword, U. S. Dept. of Commerce
B.D.S.A. Copper Quarterly, August 1954

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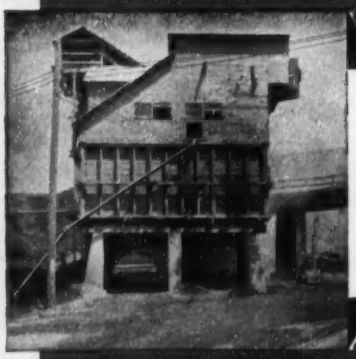
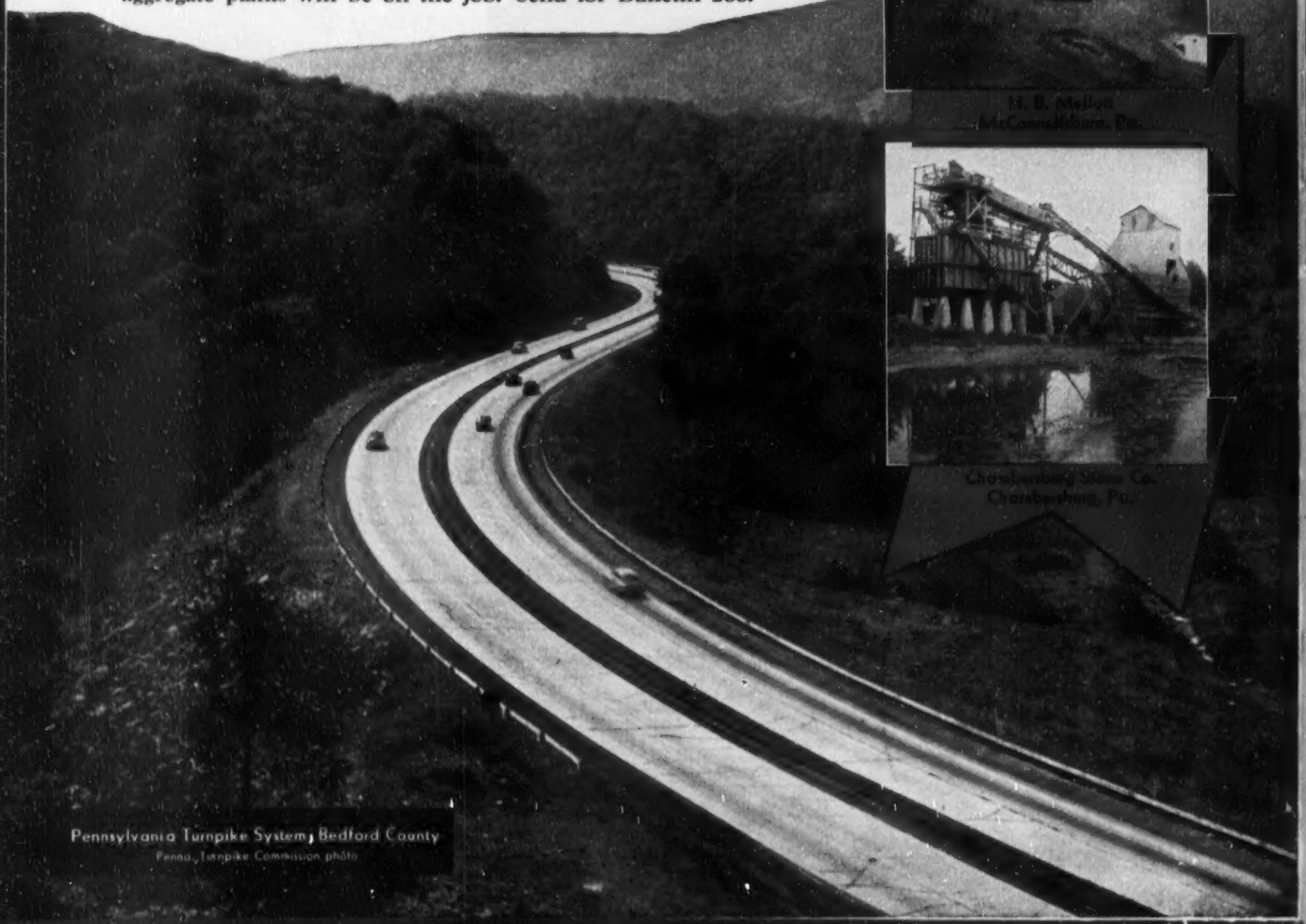


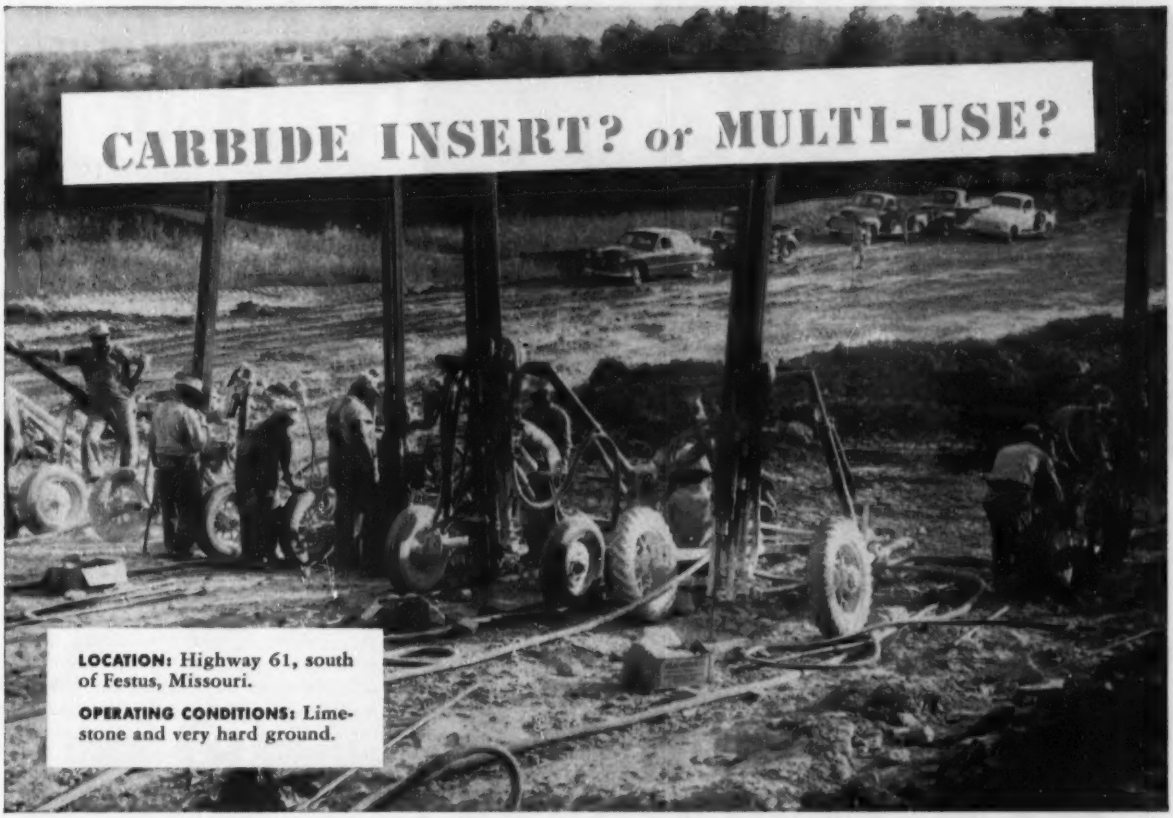
H. B. Mellott
McConnellsburg, Pa.

Chambersburg Stone Co.
Chambersburg, Pa.



Pennsylvania Turnpike System, Bedford County
Penna. Turnpike Commission photo

SMITH ENGINEERING WORKS, 500 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN


CARBIDE INSERT? or MULTI-USE?
LOCATION: Highway 61, south of Festus, Missouri.
OPERATING CONDITIONS: Limestone and very hard ground.

Why Porter Dewitt uses both TIMKEN® carbide insert and multi-use bits on Missouri highway job

IN drilling hard ground on a Missouri highway job, Porter Dewitt Construction Co. wanted the speed they could only get from carbide insert bits. Yet they figured that carbide inserts would run up their cost per foot of hole too much when drilling ordinary ground.

Porter Dewitt's solution: use *both* Timken® carbide insert bits and Timken multi-use bits. Timken carbide insert bits for high speed drilling through hard ground. And a quick switch to low-cost Timken multi-use bits for lowest cost per foot of hole when they hit ordinary ground.

With Timken bits it was a simple matter to switch bit types as the ground changed—right on the job. That's because Timken bits are interchangeable in the same thread series. Dozens of different Timken bits fit the same drill steel!

Timken carbide insert bits are always best for highest speed through hard and abrasive ground. But they're *not* the best answer to all drilling problems—as more and more construction companies like Porter Dewitt are finding out.

For ordinary ground, Timken multi-use bits are most economical. With correct and controlled reconditioning, they'll give the lowest cost per foot of hole when full increments of steel can be drilled.

All Timken bits are made of electric furnace Timken fine alloy steel and have shoulder unions, originated by the Timken Company, that protect threads from drilling impact. For the bit type most suited to your drilling requirements, call on the Timken Rock Bit Engineering Service. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit

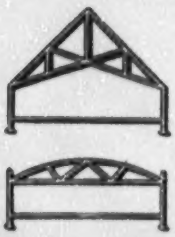
Timken threaded carbide insert rock bit

your best bet for the best bit . . . for every job

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

Rilco Laminated Products, Inc., fabricated 120' and 80' span trusses with TECO connectors for its Albert Lea, Minn., plant.



Timber is plentiful . . . and timber design data* are available for light and heavy construction

PLAN IN TIMBER

with TECO WEDGE-FIT connectors and TRIP-L-GRIP framing anchors for stronger construction of . . .

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READER COMMENT

Financing equipment

SIR: Your issue of July 8, p. 156, had a very interesting editorial entitled "To Keep Construction Rolling". What you had to say regarding a more liberal depreciation formula for construction equipment was right to the point. Undoubtedly the new tax bill which provides such welcome relief will encourage contractors to invest in new equipment.

As you pointed out, better financing facilities are also very important, and while it is true that not many commercial banks have shown an overwhelming interest in construction equipment financing, still there are those among us who do appreciate the attractive field that is offered here and are doing something about it. You may be interested to know that this suburban bank, acquiring construction equipment paper through official dealers, has handled over fifteen million dollars in this type of financing in the past eighteen months and these credits have been among the best on our books.

Construction equipment financing is a field that lends itself readily to the credit function of any commercial bank of sufficient size to assure that the bank's capital and surplus will support an active industrial finance program. Certain manufacturers of heavy equipment have individually taken the lead in making this fact known but there is still room for a truly coordinated program on the part of all the principal manufacturers in placing their message before the 500 largest banks in the country. In that way, real progress could be achieved.

R. M. DOWLING
Assistant Vice President
Equipment Finance Department
The Franklin National Bank
Franklin Square, N. Y.

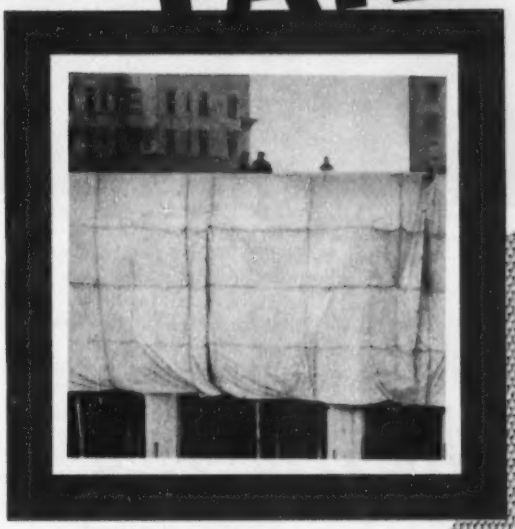
References on flat plates

SIR: Your reply to the letter of M. G. Dempster, of Australia, who asked for information on the design of flat-plate concrete floors (ENR July 22, p. 12), was too short to give him the desired information. I suggest the following additions:

1. Publications of the Portland Cement Association on the work by DiStasio and Van Buren, together with the report by DiStasio in PROCEEDINGS of the American Concrete Institute in 1941, "Flat Plate Floor Designed as Continuous Frames."

(*Continued on page 10*)

Fabric UNIFORMITY
Makes The Big Difference In
TARPAULINS



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Gives You Greater Fabric Uniformity

Checking evenness of sliver with linear regularity tester. One of a series of laboratory controls throughout production to assure fabric uniformity in all Mt. Vernon-Woodberry products.

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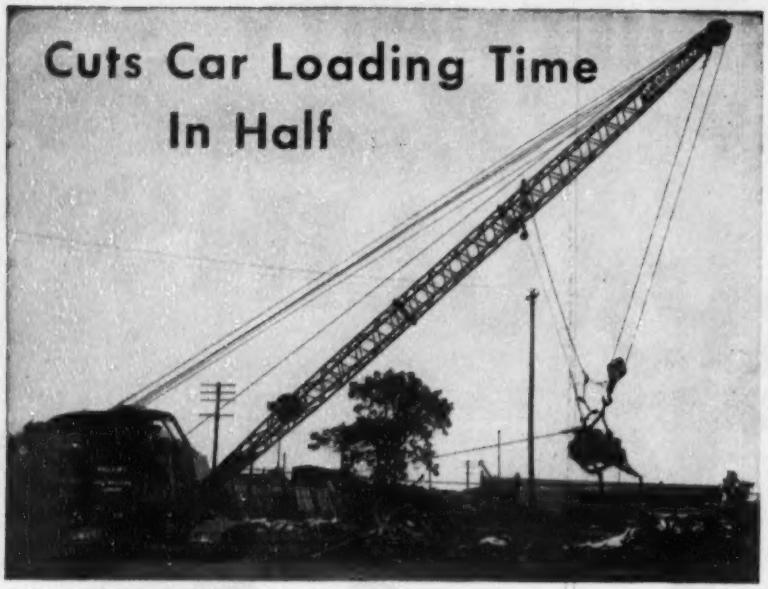

Modern Mechanization has slashed handling costs for the Phillips Auto Wrecking Co. of St. Cloud, Minnesota. Their new, efficient American 375 crawler crane has cut car loading time in half and has increased production throughout the entire yard.

Industry 'Scraps' to keep in black

Scrap metal has become "big business"—a far cry from the day when small collectors plied their trade from alley to alley. And, like other industries in our economic fabric, the scrap dealer has had to mechanize his methods to keep costs down and profits up.

Whether the market for scrap is up or down, the dealer has to continue his handling and processing. Progressive dealers like the Phillips Co. have discovered that by modernizing with efficient equipment like the American crane they can make out better on both the high and low markets.

In scrap yards . . . and on projects across the nation . . . American products are stepping up production and cutting costs for owners. Many of these projects are described in factual, on-the-job stories in the American Crosby Clipper. If your business is such that these stories are of interest to you, mail the coupon below. You will receive the Crosby Clipper regularly without charge.

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American Hoist & Derrick Company
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Yes, I'd like to get the American CROSBY CLIPPER.
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READER COMMENT

2. The PCA reprint of "Slab Band Concrete Floors," by Fred N. Severud.
3. Articles in ENR May 4, 1954, p. 24; Aug. 16, 1951, p. 35; Feb. 8, 1952, p. 93; and Jan. 8, 1953, p. 36.
4. The best summary of theoretical and experimental work on this subject appeared in French in ANNALES DE L'INSTITUT TECHNIQUE DU BATIMENT, Jan., 1951. Included in this report is work done in the U.S., France, Czechoslovakia and other countries.

JACOB FELD
Consulting Engineer
New York, N. Y.

Misplaced town

SIR: It is probably a good thing that navigation on the Mississippi is not done according to the map on page 36 of the August 5 issue of ENR. The last time I was in Grafton, Ill., the City was still south of the Illinois River.

The town of "Girardeaux" is a new one. Can it be that Cape Girardeau has moved upstream more than a hundred miles?

Very truly yours
W. VICTOR WEIR
President
St Louis County Water Co.

[EDITOR'S NOTE: As ENR's special report pointed out, things are really moving on our inland waterways.]

CALENDAR

Southeastern Association of State Highway Officials, annual meeting, Andrew Jackson Hotel, Nashville, Tenn., Sept. 28-30.

Pacific Coast Building Officials Conference, annual convention, Cosmopolitan Hotel, Denver, Oct. 5-8.

Federation of Sewage and Industrial Wastes Associations, Netherland Plaza Hotel, Cincinnati, Oct. 11-14.

National Conference on Industrial Hydraulics, annual meeting, Sheraton Hotel, Chicago, Oct. 14-15.

Structural Engineers Association of California, Hotel del Coronado, Coronado, Calif., Oct. 14-16.

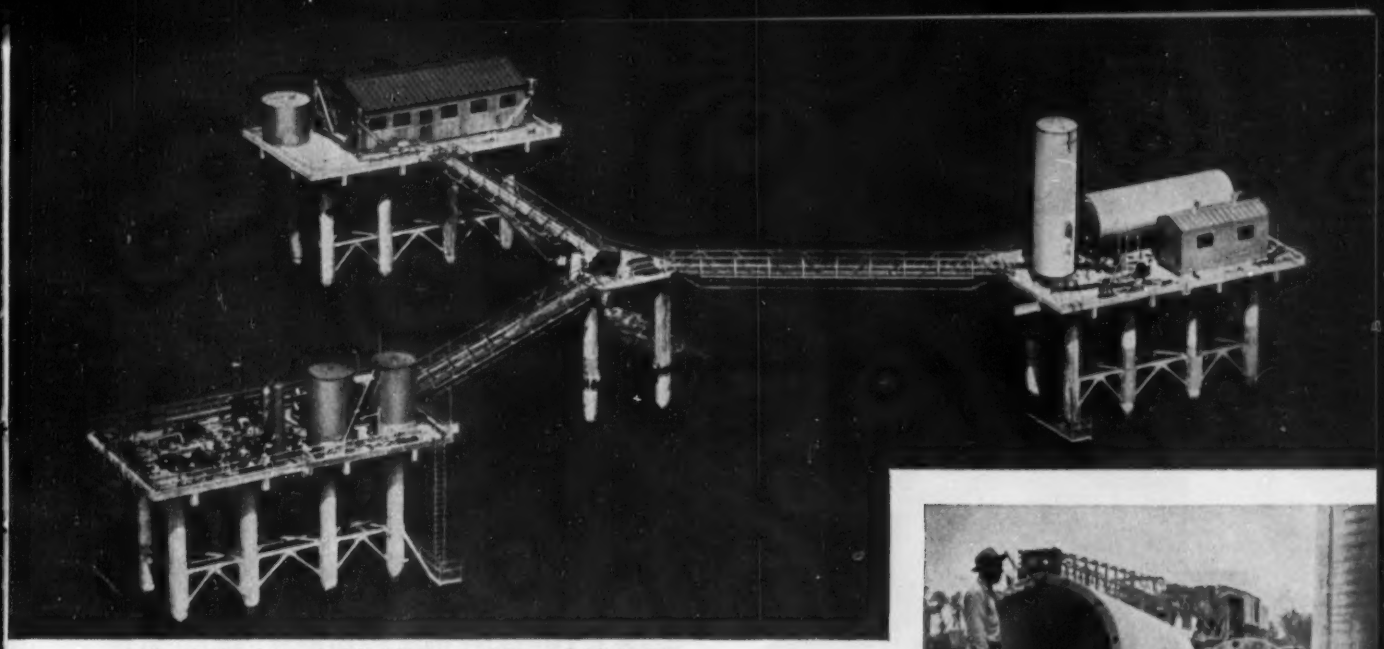
American Society of Civil Engineers, annual convention, Hotel Statler, New York City, Oct. 18-22.

American Institute of Steel Construction, annual convention, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 25-28.

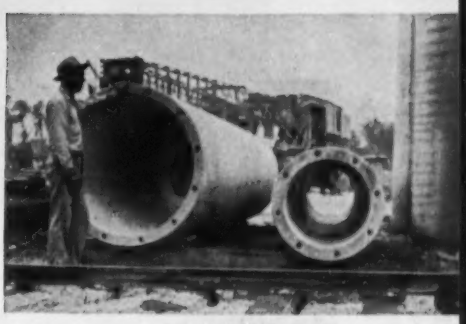
Plastics in Building, conference sponsored by Society of the Plastics Industry, Inc., the Manufacturing Chemists' Association, and the Building Research Advisory Board, at the National Academy of Sciences, Washington, D. C., Oct. 27-28.

American Concrete Institute, regional meeting, Statler Hotel, Los Angeles, Oct. 28-29.

Engineers Council for Professional Development, annual meeting, Alms Hotel, Cincinnati, Oct. 28-30.



Oil production platform in Gulf of Mexico on 36" Raymond Cylinder Piles.



Two typical pile sections.

THE Raymond

PRESTRESSED CONCRETE CYLINDER PILE

Raymond, pioneer in concrete piles, announces its latest construction development, the CYLINDER PILE, which is ideally adapted for use in off-shore projects. This pile is a hollow cylindrical pile of prestressed concrete, manufactured in a series of sections placed end to end and joined together by post-tensioned cables of high tensile steel wire . . . The advantages over other types of piles are numerous. Prestressed Cylinder Piles have extraordinary structural strength. They are fireproof, corrosion-proof and not subject to attack by marine organisms, thus assuring low maintenance and extremely long life. In addition, their flexibility as to length, diameter and extent of prestressing makes it possible for them to meet a wide variety of design requirements.

SEND FOR BULLETIN CP-1

Assembling of the pile sections.
Raymond Cylinder Piles are made in lengths up to 200 feet.

Offices serving the Gulf Coast Area:

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610 Woodrow Street, Houston 6, Texas
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CONCRETE PILE CO.

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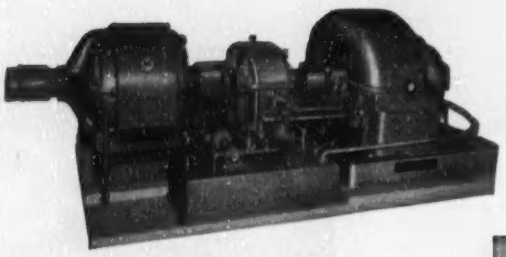
Relieve SEWAGE

Demands on Sewage Facilities Become Acute with Population Growth

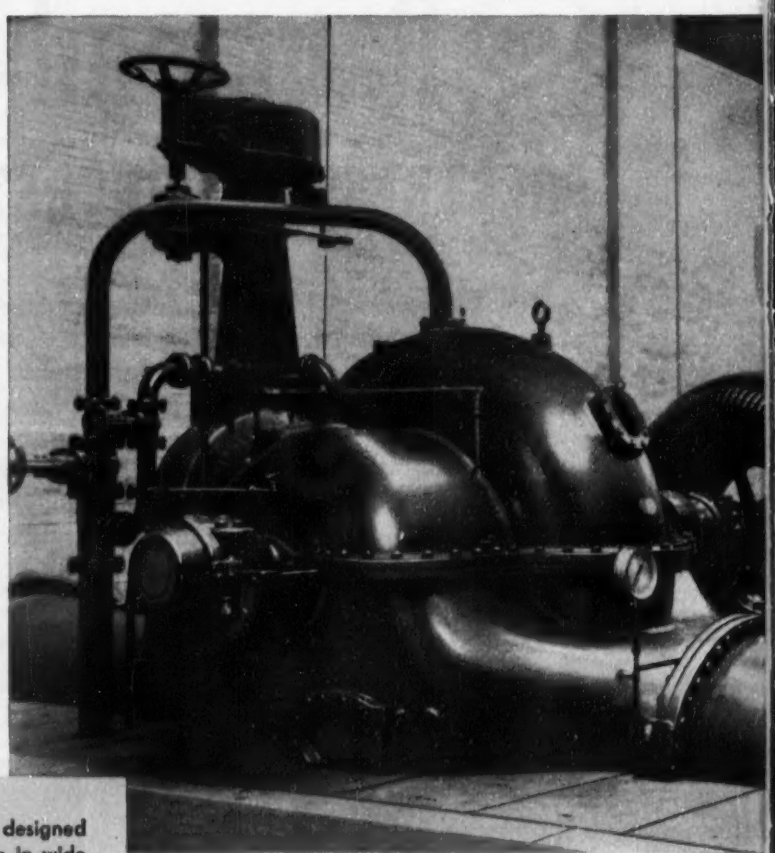
In every city the need for high efficiency, low maintenance sewage pumps is increasing as population grows. To meet this growing demand, Allis-Chalmers offers a wide range of sewage pumps engineered to the needs of municipalities.

The Allis-Chalmers line is complete . . . pumps range in size from small compact units producing few gallons per minute to huge units capable of pumping many thousand gallons per minute. To meet installation requirements, pumps are available in both horizontal and vertical design.



BLOWERS — MOTORS: Wide range of capacities and ratings for all sewage plant aeration. Simple blower design assures maximum efficiency for all operations. Cast casing provides rigid, smooth operation. Available for volumes up to 135,000 cfm.

MOTOR CONTROLS: Dependable start-stop control for all sewage processing apparatus, in both single and grouped units. Simplified installation requires only connection to leads for operation. Expandable design permits easy addition of more cubicles when required.



TYPE "S" SEWAGE PUMPS: Specially designed pumps engineered to individual requirements in wide range of capacities and heads. Extremely adaptable to large city sewage requirements. Can be furnished for either vertical or horizontal installation where needed.

Illustration shows seven large Type "S" Sewage Pumps installed in large midwest city sewage pumping station.

ALLIS-

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Whether you are planning expansion or modernization of your present sewage facilities, you can profit from Allis-Chalmers long experience in this field. For complete information call your nearest A-C sales office or write Allis-Chalmers, Milwaukee 1, Wisconsin.

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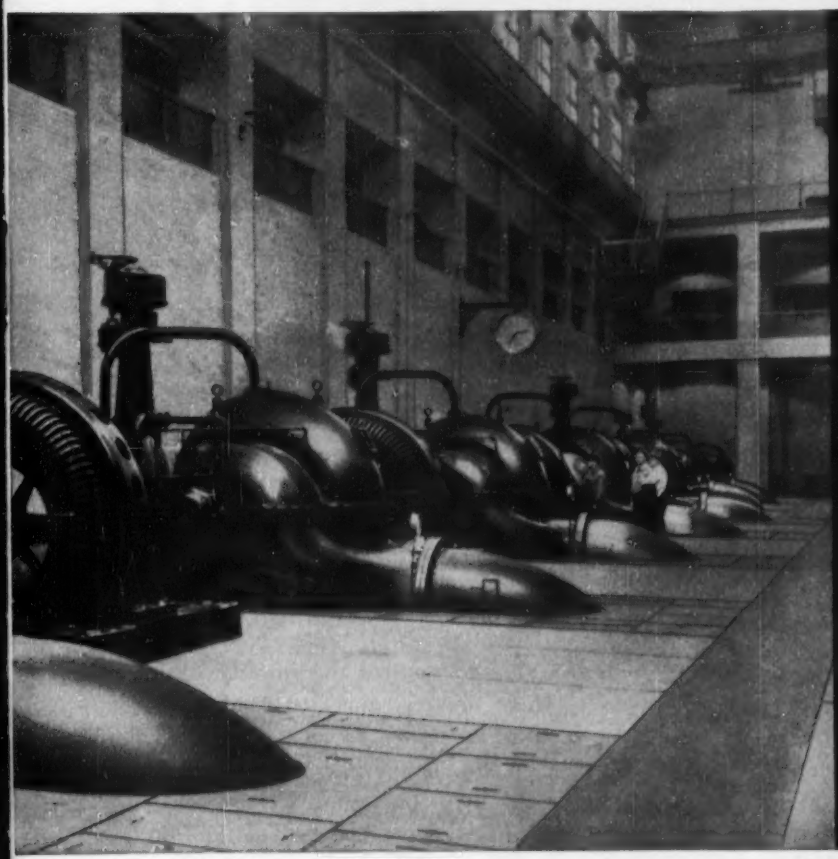

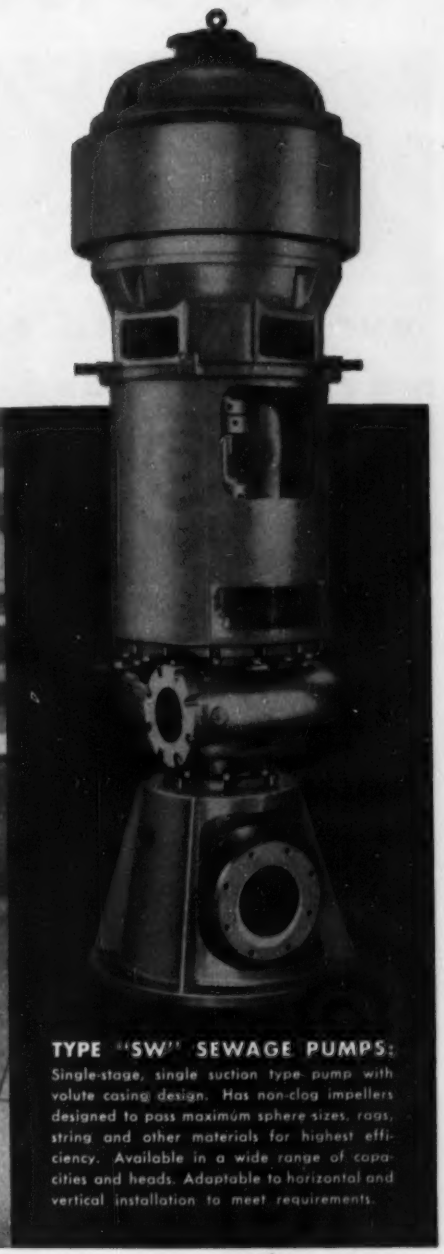

TYPE "SW" SEWAGE PUMPS: Single-stage, single suction type pump with volute casing design. Has non-clog impellers designed to pass maximum sphere sizes, rags, string and other materials for highest efficiency. Available in a wide range of capacities and heads. Adaptable to horizontal and vertical installation to meet requirements.

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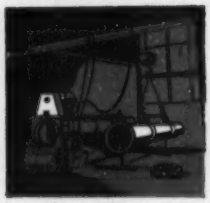

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our integrated operation means undivided control of quality

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We are a wholly integrated pipe-producing unit — with mines, quarries, blast furnaces and laboratories under one direction and control.

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A wholly integrated producer . . . from mines and blast furnaces to finished pipe.

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Better Mortar for Blocks

WHY IS GOOD MORTAR IMPORTANT?

Because of their size and weight, concrete blocks require mortar with "body", plasticity and water-retaining capacity. Brixment meets all these requirements. It has the *body* necessary to support the weight of the unit and hold it up to the line. It has the *plasticity* necessary to prevent the mortar from falling off the long head joint, while the block is being placed in the wall. It has high *water-retaining capacity*, which gives the bricklayer more time to shift and adjust the block to its final position before the mortar stiffens.

It is the combination of these characteristics that makes Brixment the leading masonry cement for concrete block as well as for brick.

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Contractor: Farnsworth & Chambers
Fabricator: Houston Iron & Steel Co., Houston, Texas
Owner: State of Louisiana, Department of Highways

THE HARVEY TAYLOR BRIDGE IN HARRISBURG, PA.
Designer: Modjeski & Masters,
Consulting Engineers, Harrisburg, Pa.
Fabricator: Bethlehem Steel Co.
Owner: State of Pennsylvania, Department of Highways

Alcoa® Aluminum Highway Railings Eliminate Costly Maintenance

Have you ever seen a highway railing rusting away? Today's highway engineers, city and state officials know the solution lies in making highway railings of a metal that needs no maintenance . . . Alcoa Aluminum. They know, too, that a quarter of a century of aluminum's successful use in these applications will support their recommendations.

This background started in Chicago 26 years ago. There, five bridges spanning the Chicago River were equipped with aluminum railings. Not a dime has been spent to maintain them. And in the intervening years, hundreds of aluminum highway railings have been installed—none of which will ever need painting to preserve them.

If you are in city or state government—in construction or design—you should have a copy of *Bridge Railings of Alcoa Aluminum.* Write ALUMINUM COMPANY OF AMERICA, 1974-J Alcoa Building, Pittsburgh 19, Penna.

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TO DESIGN ENGINEERS the strength and lasting good looks of aluminum railings are important. Truly modern in appearance, flexible in design.

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TO CITY AND STATE OFFICIALS the fact that aluminum highway railings never need maintenance enables them to point with pride to savings for taxpayers.

ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

DO IT YOURSELF—The Census Bureau wants manufacturers to go and do likewise on that survey of how much handy homeowners spend doing their own construction and repair work.

Census was authorized to make a one-shot survey this year, and on the basis of figures still being released, discovered that the handymen spent something like $3 billion last year, including $1.26 billion for repairs and replacements, $1.4 billion for alterations and improvements. Plus a lot more for tools and materials.

The Bureau figures manufacturers should follow its lead, carry on the census themselves.

LIGHTS UP, ACCIDENTS UP—New York's Department of Traffic wasn't sure what to say about its experiment of forcing city motorists to use low-beam headlights, not parking lights, in night city traffic.

Total night accidents in the city rose, but only slightly, in comparison to daylight accidents (5.3% rise at night, 19.4% daytime); pedestrian injuries at night fell slightly (off 2.5%). But pedestrian fatalities increased, sharply, from 219 in 1952 to 254 in 1953.

LOBBY GROUP—Determined to get approval of the $1-billion proposed Upper Colorado River storage project, the Wyoming Natural Resources Board started a move to form a four-state "committee" to push for congressional support.

J. Elmer Brock, Wyoming board chairman, said his opposite number in Utah, New Mexico and Colorado would be contacted.

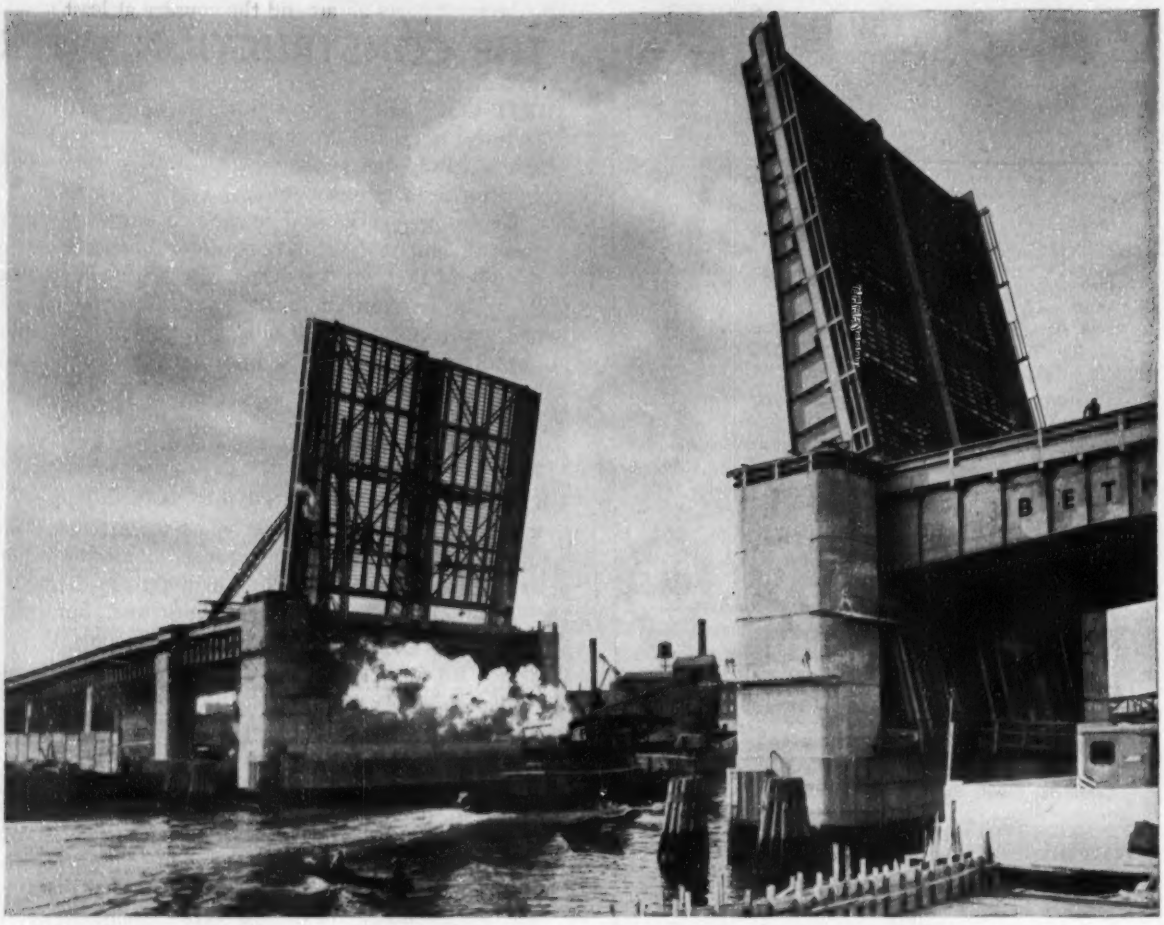
CHANGE OF MIND?—Tennessee pundits were reading a change of direction more favorable to toll roads in Governor Clement's offhand remarks to the Nashville Chamber of Commerce.

Attending a Chamber breakfast meeting, Clement invited businessmen to let him know how they felt about the state's participation in interstate construction of toll superhighways.

In two political campaigns, the governor had adamantly opposed toll roads.

NO WONDER—Not surprisingly, ASCE's Tennessee Valley Chapter picked TVA's engineering works as tops in its listing of the "seven wonders" of the area. Runners up: the Arnold Engineering Center, the Tennessee Eastman development at Kingsport, Alcoa's developments in the area.

BETTER THAN BUGGIES—Helicopters, making charts at a scale of four miles to the inch, have mapped in 3 months a 50,000-sq mile area in Canada's northwest territory that surveyors estimated would take two years to do on horseback.



SIX-LANE BASCULE BRIDGE IS NEW QUEENS-BROOKLYN LINK

Motorists traveling on Long Island will soon be enjoying $25 million worth of better driving. About $16 million represents parkway construction in Queens and Nassau Counties. The remainder is the cost of the Newtown Creek lift bridge, including its broad, elevated approaches.

The northerly approach to the Newtown Creek lift bridge spans the entrance to the Queens-Midtown Tunnel as well as the Long Island Rail Road yards. The old Vernon Blvd. bridge appears at upper right.

The big new span, shown here with steel erection nearly completed, carries New Vernon Avenue across Newtown Creek, the Brooklyn-Queens boundary at this point. Unlike the ancient Vernon Boulevard roller-lift bridge it replaces, the new span is high enough to allow most water-borne traffic to pass beneath the closed bascule leaves, eliminating many traffic-tangling openings.

The Newtown Creek lift bridge is of twin double-leaf bascule design, with simple trunnions, and with plate-girder approaches. General contractor was Horn Construction Co. Bridge design and supervision of work by Department of Public Works, City of New York, Frederick H. Zurmuhlen, Commissioner. Over 5500 tons of structural steel were fabricated and erected by Bethlehem Steel Co.

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On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

WASHINGTON OBSERVER

Housing scandals will stay on the front pages all around the country at least up to Election Day. That's the meaning of this week's move by Attorney General Brownell ordering the 94 U. S. attorneys to present to grand juries any evidence of criminal offenses in housing operations in their areas.

Brownell set the pattern by ordering a special grand jury to look into the activities of Clyde L. Powell, former FHA man in charge of all rental housing programs. Powell is the man the Republicans charge with being the key to builders' windfall profits of more than $50 million. In a report to Housing Chief Cole last week, special investigator Wm. McKenna said that the story of corruption in FHA is "largely the story of the reign of Clyde L. Powell."

Cases are most likely in cities like Chicago, New York, Washington, Indianapolis, and others being visited by Senator Capehart's Banking Committee group now holding hearings around the country.

•

Construction contracts for the "Texas tower" off-shore radar stations (ENR Aug. 12, p. 23) are expected to be signed by Dec. 1. The military is planning to give the contract, expected to amount finally to around $15-20 million, to one firm which will then subcontract work on the 20 to 25 installations.

A decision on the design will be made next week. Core test drilling by the DeLong-Raymond Co., of New York has been completed already, and the firm of Anderson, Nichols & Co., and Moran, Proctor, Mueser & Rutledge will meet Sept. 27 with the Air Force to wind up the design study. Construction contract negotiation will follow.

•

A construction man's handbook on organized industrial districts will be published within the next month by Commerce Dept. It's a guidebook on showing how to organize an industrial district, how to finance, control and promote.

There are some 120 of these districts—and the report will list them by name of the district, location, owner or sponsor, acreage, rail facilities, and type of industry it could provide. The title: "Organized Industrial Districts—a Tool for Community Development." It will be obtainable at Commerce for a minimum price once it's printed.

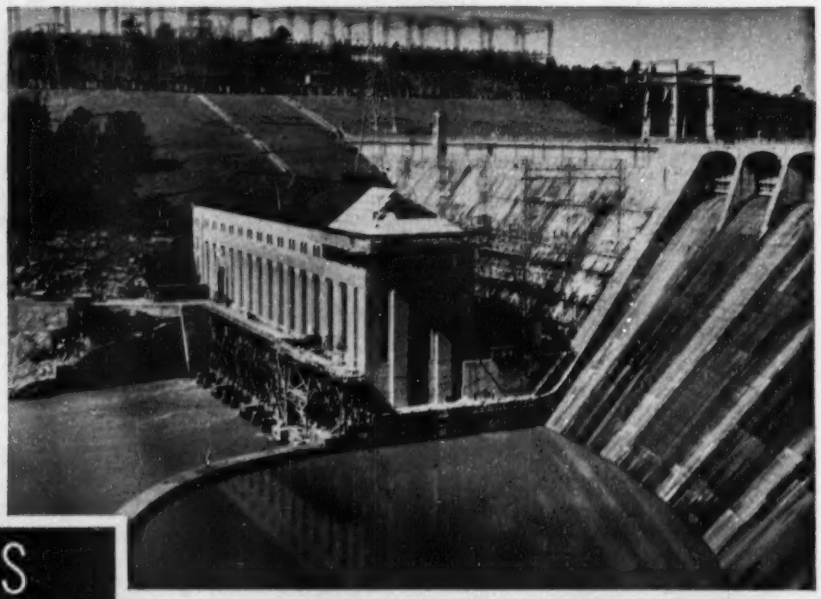
•

Public power groups are starting legal attempts to thwart the Administration's Dixon-Yates contract for a new privately owned steam plant in the TVA. American Public Power Assn. is appealing to the Securities and Exchange Commission to intervene in a stock sale program of the Middle-South Utilities, Inc., part of the Dixon-Yates combine. And the city of Memphis is warning of a court fight, too. However, neither case is figured to be strong enough to do more than delay the project.

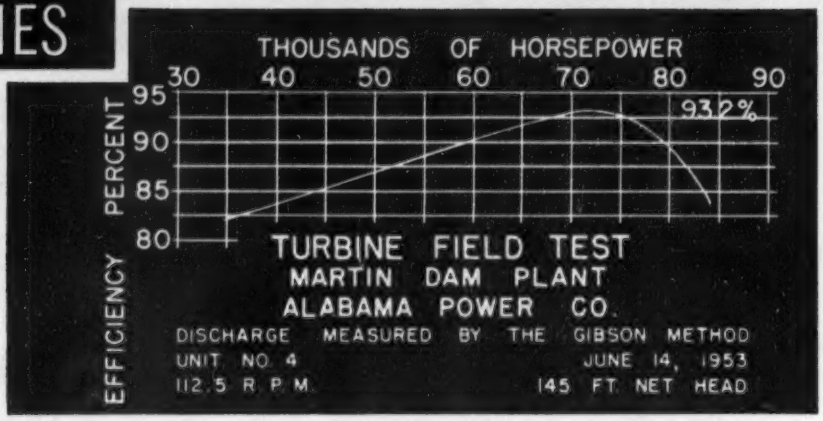
•

A new push for more plants to produce titanium may be in the works. Government planners are talking about going beyond their present goal, which has resulted in the building of more than $100 million worth of plants in the past couple of years. Du Pont now has a $35-million plant under construction in Tennessee to complete the first big buildup. And Union Carbide has just gotten a big contract (p. 73).

General Services Administration has 17 new contracts in the works—five of them actually under negotiation, 12 of them being given a preliminary study. Among the firms involved: Monsanto, Kennecott Copper, National Distillers, New Jersey Zinc, Kaiser Aluminum. Program could result in another $50 million in plants, or more.



SMS FRANCIS TURBINES



78,000 HORSEPOWER GUARANTEED in a 45,000 HORSEPOWER SETTING

At the Martin Dam on the Tallapoosa River, the Alabama Power Company was faced with the problem of getting the maximum output from the remaining space available. In spite of space and setting restrictions identical to those of the three existing 45,000 hp turbines, an SMS-Francis Turbine with 78,000 hp guaranteed capacity was installed.

A special new runner was developed by our Hydraulic Engineers specifically for the Martin Dam project. How well the conditions were met and requirements exceeded is demonstrated by the above performance obtained during the Official Acceptance Test.

You can call on over 75 years specialization in Hydrodynamics to help solve your problems. For full information on hydraulic turbines and accessories like valves and head gates, write to S. Morgan Smith Company, York, Pa.

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Highway financing

Western state highway officials suggest plan for Eisenhower program

A plan for financing President Eisenhower's proposed $50-billion, 10-year highway program was suggested last week by the Western Association of State Highway Officials.

Meeting at Sun Valley, Idaho, in their 33rd annual conference, the westerners approved a resolution for financing stepped-up highway construction by issuance of bonds or other securities to be serviced by receipts from the present federal gasoline tax of two cents a gallon.

WASHO suggested that the interstate highway system be made a 100% federal obligation because of its importance to national defense. Cost of construction on the interstate system over the 10-year period was figured at $20 billion.

The federal government also would pay 50% of the cost of highway construction on other federal aid systems, under the WASHO proposal. States would match the federal funds for this work which would total $30 million over the 10-year period.

Conference officials said the securities issued to finance highway construction probably could be serviced without increasing the federal gasoline tax.

Since interstate system construction would be 40% of the entire program, only $3 billion of construction a year would remain on a matching basis. That is only a little larger than the present program, so probably the states would have to raise little, if any, new money.

Copies of the WASHO resolution were forwarded to the White House and to the committee of state governors which meets in Chicago this week to get on with the job of drawing up a plan to implement the President's suggested $50-billion highway construction program. The governors' plan is expected to be the basis for legislation the Administration intends to submit to the next Congress.

Another resolution passed by the conference urged that no federal aid highway funds be made available for toll road facilities. The group considered that the problem of toll roads should be left to the discretion of each state.

RICHARD J. GRAY. He calls for labor law to benefit construction trades.

• **More research needed**—WASHO president E. V. Miller, Idaho state highway engineer, put forward a suggestion for establishment of a national field highway research laboratory. He cited the recently completed WASHO test road program as an example of the interstate research cooperation possible but emphasized that occasional test projects, even if carried out in big league style, are not enough.

No results of the WASHO test road were announced at the meeting. A full report on operation of the project is due next spring, and officials feared that disclosure of results before all data is analyzed might lead to misinterpretations.

WASHO's Dr. L. I. Hewes Award—in memory of the longtime head of the Bureau of Public Roads western headquarters—went to Arnold H. Carver of the California Division of Highways for his work in developing radio for highway use. The award is made annually to a young engineer from one of the twelve member states.

The conference elected C. O. Erwin, New Mexico state highway engineer, to be the new WASHO president and decided to hold next year's conference in Wyoming.

Labor peace due?

New leadership strength boosts chances of scheme to end inter-union rows

An ENR staff report

Big news for the construction industry—news that vitally concerns the profits and economic health of the industry as well as the welfare of its workers—was coming out of the annual meeting of the American Federation of Labor at Los Angeles this week.

The key points, which developed largely in the preconvention meeting of the Building Trades Department, broke down about this way:

1. Settlement of two long-standing jurisdictional disputes involving the militant carpenters' union, and the attendent evidence that an overall jurisdictional disputes plan would go through.

2. A demand from the building trades for what would amount to a "railway labor act" that would put construction labor into a separate category under federal law;

3. Evidence of growing strength in the top AFL management that will be able to hold warring factors within the federation in line with new plans.

• **End of a battle**—What made the headlines, first of all, in the three-day Building Trades session, was the announcement of the end of two long-standing jurisdictional disputes: between the carpenters and machinists, and the carpenters and three unions involved in highway construction.

The machinist-carpenter battle, well known in labor circles as "the granddaddy of jurisdictional disputes," dates back to before World War I, and concerns a hair-splitting definition of whether the carpenters' millwrights or the machinists' "erection machinists" install certain machinery. It has caused two walkouts (by the millwrights) from AFL, and endless lost time.

The two unions split more hairs to reach their agreement—giving the machinists the right to erect printing presses, certain brewery machinery and bottling equipment, machine shop work; giving the millwrights the work

. . . Labor peace prospects brighter

of installing conveyors, packaging machines, and providing for joint crews of both trades to do certain other work in connection with steam and gas turbines, generator units.

The deal on highway work wasn't announced--but it again involved the carpenters, and the hodcarriers, operating engineers and teamsters.

• **Significance**—Observers saw two clear signs in the agreements that top the importance of the agreements themselves (particularly in view of the fact that one other key carpenter fight is still unsettled—that with the ironworkers and sheetmetal workers over installation of metal cabinets):

The carpenters, who have been taking the onus as the bad boys of the AFL Building Trades family for the past year or more, are apparently amenable to some reasonable talk and action; more importantly, the leadership of Maurice Hutcheson as carpenter president, is becoming stronger and more sure.

In this latter fact, labor observers read salvation for the AFL's plan for ending jurisdictional disputes. There had been considerable fear earlier in the year that the carpenters might form some sort of an alliance with the teamsters and perhaps with the CIO steelworkers, and pull out of AFL entirely. Insiders were just as sure that Hutcheson--who succeeded his father as head of the carpenters—wouldn't take his union out of AFL and would assert stronger leadership to prevent such an action, as soon as he felt himself firmly enough in the presidential saddle.

• **Hope for disputes plan**—Hutcheson's emergence as a stronger leader put a strong card in the hands of AFL president George Meany, who wants to push through his general plan for ending jurisdictional disputes within the whole AFL, through an elaborate arbitration procedure that would proceed upward from the union local level.

Until now the Meany plan faced two formidable obstacles—the uncertainty of the Carpenter action, and the sprawling teamster union of Dave Beck.

Beck, of course, has long been a thorn in the side of the building trades.

Not a member of the trades, his union nevertheless holds power of life and death over construction. His truckmen in New York City a year ago threw a block into construction work that threw more than 200,000 building tradesmen out of work—by simply refusing to drive the trucks that deliver materials to the crowded big-city construction sites.

JAMES MITCHELL Labor Secretary's speech backs part of plan to bring federal laws into line on construction.

Beck has already announced his opposition to the disputes plan, but observers at Los Angeles were unanimous in believing Meany would push it through anyway.

• **New law**—Building Trades Department president Richard J. Gray threw a long-expected bomb to the trades departments meeting with a proposal that would set up virtually a separate law to deal with construction.

The proposal was not unexpected, of course. Gray has long been a leader in fighting the Taft-Hartley law—not because of political opposition but because he feels that the law was written to cover factory and industrial labor—and cannot be made to apply to construction.

Why Gray proposed was this:

• Revision and expansion of the Davis-Bacon Act applying to federal construction that would ring under it also some small home construction under FHA loans, and make part of the law provisions for health and welfare benefits, and pensions;

• Establishment and enforcement of minimum safety standards on federal construction.

What Gray didn't say specifically, but as implicit in these recommendations was recognition of construction as a separate grouping of labor. Inclusion of provisions for "fringes" would automatically supersede some provisions of Taft-Hartley, and would certainly lend strength to AFL's claims that its long-standing customs of prejob agreements, area agreements and the like are much more practical than the nearly-impossible representation elections demanded by T-H. Also implicit was the belief that such federal law would supersede the growing number of state "right to work" laws.

N. Y. firm will make survey for Nebraska toll highway

The Nebraska Turnpike Authority has approved selection of the engineering firm of Coverdale and Colpitts, New York, to make a preliminary traffic and earnings survey of the first section of a proposed east-west toll road in Nebraska.

The first leg of the proposed cross-state turnpike to be considered is the section between Omaha and Lincoln. This is a distance of 65 miles.

The authority was told that the preliminary study on feasibility of the proposed toll road can be completed by the end of January.

ENR establishes public works award

To encourage more young engineers to make careers of engineering for all types of public works, the publishers of Engineering News-Record have set up an annual fellowship award of $1,000 for graduate study.

This award will be administered by the American Public Works Association. Announcement of its availability was made at the APWA annual meeting at Atlantic City, Sept. 22, by Willard Chevalier, executive vice president of the McGraw-Hill Publishing Co.

Chevalier said the publishers of ENR long have recognized the need for attracting technically trained men to positions in the public-works field—federal, state and municipal. He expressed the hope that this award will assist in developing the latent talents of young engineers who choose to devote their efforts to the challenging tasks that lie ahead in that broad field of activity.

The award will be made to graduate engineers now in the employ of a public works department or to seniors in engineering schools who have been employed for at least one summer by such a department. The award may be applied toward graduate study in any accredited engineering school, toward night-school courses or for summer-school work. Subjects studied may be any one of the many needed in public works engineering: street and highway traffic control and public administration.

Full details concerning the award can be obtained from the APWA office, 1313 East 60th St., Chicago 37, Ill. The first award is to be made next year. Application must be made prior to March 1.

Plans move ahead for start next year on AASHO's big road testing project

Plans are shaping up for a start next year on the National Road Test project of the American Association of State Highway Officials. Outstripping all previous road tests in scope and purpose, the project may cost $12 million and take seven years to carry through—from land acquisition to final report.

Two main preliminary hurdles have been cleared. More than 30 states have declared their intention to back the project with cash contributions. And industry participants have signified their willingness to furnish vehicles, fuel and tires.

Only the details of the agreement between the manufacturers and the AASHO remain to be worked out. Industry representatives and the AASHO executive subcommittee in charge of the project hope to conclude these arrangements at a meeting before Oct. 20.

Then the AASHO executive group, headed by first vice president G. T. McCoy, California State Highway engineer, will be able to present the project for adoption at the association's annual convention in Seattle Nov. 9-11.

A major part of the presentation will be the test program proposed by a 20-man working committee that has been developing project plans since 1951. E. A. Finney, research engineer of the Michigan Highway Department, is chairman of the working committee, which includes eight representatives from outside AASHO.

The working program submitted by this committee will furnish the basic plan for carrying out the project. It will be subject to revision by an advisory committee to be appointed after the project is adopted. This advisory group will undoubtedly include representation from the broad range of interests that have a stake in highways and highway transportation.

Main objective of the test is to develop data that will enable highway people to solve two basic and baffling problems:

- How to design pavements that will carry present and future traffic loads.
- What additional highway costs can be justified to permit the use of heavier trucks than are now allowed.

To get this information, the project aims to collect and interpret—for use by highway engineers in all areas—comprehensive data on varied test sections under different axle loads. The test sections will be paved with both rigid concrete slabs and flexible bituminous surfaces on carefully controlled subgrade and substructure courses.

As a primary purpose to determine total highway costs for carrying measured loads, the test sections will be maintained in serviceable condition; they will not be tested to destruction. In addition, the varied test sections will be designed to correspond with the axle loads to be applied. Generally, these designs will range from reasonable minimums to desirable optimums—on the basis of present knowledge—for the loads intended.

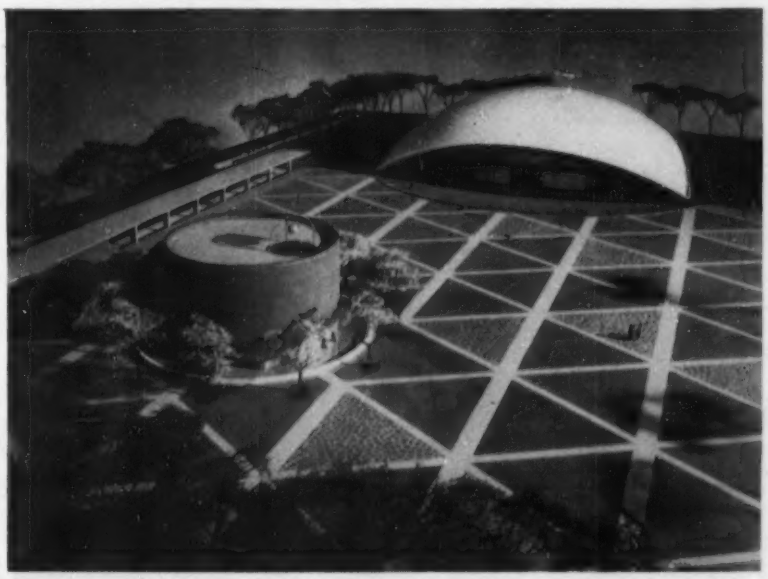
Four test loops are proposed, each consisting of two parallel lanes, one for single-axle trucks and the other for tandem-axle loading. For the four loops, the proposed single-axle and tandem-axle loadings are (A) 10,000 lb and 20,000 lb; (B) 18,000 lb and 32,000 lb—the present AASHO recommended limits, in effect in most states; (C) 22,400 lb and 40,000 lb; and (D) 30,000 lb and 50,000 lb.

Plans for the four loops propose that they be built in series on a proposed relocation of U. S. 6 between Ottawa and La Salle, Ill., 100 miles southwest of Chicago. Illinois will support the investment up to the limit of normal costs for building this portion of its planned four-lane divided highway on U. S. 6. Soil conditions and materials sources for the selected site are such as to assure the characteristics and uniformity desired for the test.

Each loop will consist of parallel two-lane roadways measuring some 6,000 ft long on tangent, connected at both ends by turn-arounds to permit continuous one-way driving on each lane. Built into each lane will be varied test sections of rigid and flexible type, probably 300 to 500 ft long.

Acceleration and deceleration sections also are proposed for all loops. In addition, the program will likely include proposals for two-span bridges of steel, reinforced concrete and prestressed concrete in two of the loops.

The possible seven-year timetable runs something like this: maybe a year for Illinois to acquire right-of-way and work up plans and specifications, another year for grading and bridges, a third year for paving and preliminary testing, then two years of routine testing, followed by a year of special tests and a final year for study and analysis.



Chapel at MIT will be a brick cylinder

Contract for construction of a unique student chapel (foreground) at Massachusetts Institute of Technology has been let to the George A. Fuller Co., New York City. The $325,000 building will be a brick cylinder with vertical axis, 54 ft in diameter and 34 ft high, surrounded by a moat. Light from the water will be reflected into the 126-seat chapel through arched openings in the bottom of the structure, and a circular skylight in the roof will direct a shaft of light onto the altar. To be completed next spring, the new building is being erected close to a nearly completed auditorium, (background) which is also of unusual design. It has a thin-shell domed roof supported at only three points (ENR May 27, p. 30).

Connecticut considers plan to pre-clear right-of-way for $346 million highway

Connecticut's State Highway Department has "under advisement" a suggestion that it pre-clear right-of-way for the $346 million Greenwich-Killingly Expressway, now under design and due to go to contract about July 1 next year.

Instead of waiting to include clearing and grubbing as the usual first items in the construction contract for the 192-mi toll road, Connecticut might advertise for bids on some clearing and grubbing earlier.

State Highway Commissioner G. Albert Hill told ENR this week that the idea is "manifestly interesting, novel in Connecticut." But he said it requires considerable study.

Claimed advantages are these: First, stripping the ground—making the right-of-way fully accessible and visible to prospective bidders—might take some of the guesswork out of bids. Second, clearing the route ahead of time ought to give the successful bidder a running start at roadbuilding and might conceivably advance the completion date, the day on which tolls are collected.

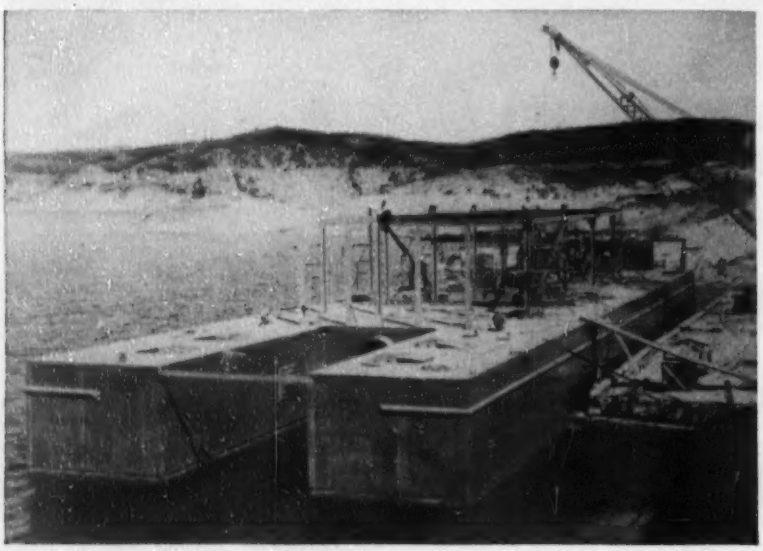
• **Source of suggestion**—Credit for the pre-clearing idea goes to the Construction Engineering Company of America, Inc., a young Danbury Conn., firm with four years of land clearing operations under its belt. The firm wants to stay in business as a specialist in land clearing—and as prime contractors rather than subcontractors.

Gerald T. Erickson, president of the Danbury firm, admits that right now his outfit is between engagements. He is finishing a 1,870-acre reservoir clearing job on the Housatonic River for Electric Power Inc., wholly owned subsidiary of The Connecticut Light and Power Co. This work involved 35 mi of shoreline in rugged country behind the 139-ft Shepaug Dam.

• **Still another idea**—Erickson gave Commissioner Hill another pitch when he went to talk to him about the pre-clearing idea. Erickson would like to take fill and topsoil out of the Shepaug reservoir bottom right now, before it is flooded, haul it some 20 mi and stockpile it along the west end of the Connecticut expressway's right-of-way so that the state could make it available to contractors who will bid on the roadbuilding.

About 12 million cu yd of fill will be needed for the portion of the road west of New Haven, and it will be at a premium in this area because of zoning of its rather high priced real estate. Commissioner Hill told ENR that his department is exploring by offshore boring the possibility of dredging fill from the bottom of Long Island Sound.

Erickson said he has consulted with truck manufacturers and has estimated that it would take 400 trucks 20 months to haul in the amount of fill needed over an average 20-mi haul from Shepaug to the expressway west of New Haven.



Big dredge will uncover iron ore

Launched this month at Steep Rock Lake, Ontario, the dredge Joseph L. Block is shown as fitting-out begins. Together with a sister dredge, the Clarence B. Randall, it will remove fine silt from the bottom of the lake, which is 130 mi. northwest of Port Arthur, Ont. Silt-removal will permit Calend Ore Co., Ltd., to get at rich iron ore deposits previously untapped. Said to be the largest dredges in the world, these vessels are 176 ft long, 50 ft wide and 14 ft deep; a 10,000-hp motor will drive a 36-in. pump on each dredge. Construction Aggregates Corp., Chicago, is building the dredges and will operate them.

Great Lakes job

Senator says Congress will vote $100 million for deepening channels

Sen. Homer Ferguson, Michigan Republican, has predicted that Congress will approve next year a $100 million project for deepening the connecting channels of the Great Lakes.

Sen. Ferguson made his prediction in a speech to the annual convention of the Great Lakes Harbors association in Muskegon, Mich. He was supported by Maj. Gen. S. D. Sturgis, Jr., chief of Army Engineers, who said he was "optimistic" that the Army engineering report on the project, due by Nov. 1, would be favorable.

Construction of the St. Lawrence Seaway with its 27-ft channel into Lake Erie, Sen. Ferguson said, made it imperative to deepen the connecting channels into other Great Lakes so that ocean-going ships could reach ports on Lakes Michigan, Huron and Superior.

"The job will take four or five years," Sen. Ferguson said. "If we are to have them deepened by the time the Seaway is finished, we must start at once. If we fail, the cities of Michigan, Illinois, Wisconsin and Minnesota will be left at the post in the greatest economic race of the century."

Gen. Sturgis said the Calumet Sag channel, the 14-mi bottleneck in the Illinois waterway system, and most of the navigation works on the Ohio River would have to be modernized if the Great Lakes region is to realize the full potential benefit of the St. Lawrence Seaway.

He told the convention that work on the Seaway project is being expedited and that completion within four or five years was a "reasonable expectation." The Corps of Engineers, Gen. Sturgis said, already is at work on design of structures and is looking into land acquisition and other requirements.

Second Ohio pike

Engineers say only one part would earn enough to be financially feasible

Revenue studies for a second toll turnpike across Ohio from Cincinnati to Conneaut, a distance of 291 miles, with a 107-mile spur from near Columbus to Toledo, indicate that the 74-mile section between Cincinnati and Springfield will produce ample income initially to attract investment capital, but that the remaining sections, considered alone, are much less attractive as revenue producers. These are the 143-mile section from Springfield to Turnpike No. 1 south of Cleveland, the 74-mile section from there to Conneaut, and the 107-mile Toledo spur.

This study of Ohio Turnpike No. 2 was made by Coverdale & Colpitts, consulting engineers, New York. The firm estimated the cost of construction and financing at $425 million for the main Cincinnati-to-Conneaut section and $147 million for the Toledo spur, a total of $571 million. This estimate was based on an earlier estimate of construction costs alone of $508 million, made by the J. E. Greiner Co. of Baltimore.

Concerning the main stem from Cincinnati to Conneaut, the Coverdale & Colpitts report said that its first year's earnings would be 1.27 times the interest requirements on the $425-million cost. Investment bankers are said to seek a coverage of 1.5 times.

Chairman James W. Shocknessy and Chief Engineer T. J. Kauer of the Ohio Turnpike Commission expressed amazement at the revenue report and immediately suggested a restudy of the northern segment from Cleveland to Conneaut, where a connection with the New York State Thruway is planned.

Under Ohio law, each turnpike project must be self-supporting. Hence none of the income from Ohio Turnpike No. 1, now approaching completion, could be used to help finance project No. 2.

Wisconsin toll road project reported not feasible now

The Wisconsin Turnpike Commission has announced that construction of a 250-mi toll highway from the Illinois border to the Minnesota line is not feasible now.

Cost of the proposed turnpike was estimated at about $200 million. J. E. Greiner Co., Baltimore, reported on construction costs for the project, and Coverdale & Colpitts, New York, studied traffic and revenues.

WORKING ON THE LEVEE of the Sacramento River in California.

Nature lovers attack Army Engineers for destroying scenic beauty of river

The Corps of Engineers is engaged in a battle on two fronts along the Sacramento River in California—a running fight against floods and erosion and a rear guard action against fishing and boating enthusiasts who charge the construction work is defacing the once-beautiful river.

Construction on the $140-million flood control project is moving ahead at a $4-million-a-year clip. Another $20 million of work will bring the 37-year-old project to the point where it can be turned over to local agencies for maintenance.

But the California Marine Parks and Harbors Association is demanding that the Corps halt all flood control and levee work in the delta region and agree to a public hearing at which citizens of the area could express their opinions on the desirability of the work.

Sportsmen objected particularly to removal of trees and vegetation on the banks of the river. "The project will result in the destruction of the beauties of the delta region and a complete loss of its recreational facilities," the Association said in a resolution.

Lt. Col. Denis B. Grace, executive office of the Sacramento District, replied that he recognized the complaint as legitimate and stood ready to discuss the problem. "But," he added, "the idea of building or adding to a levee without removing the growth is engineeringly abhorrent."

A typical operation on this project involves creating a three on one slope on the river side by dredging embankment material from the middle of the river and placing a blanket of quarry rock or cobbles, depending on which is easier to bring in.

This blanket is 12 to 15 in. thick and extends from the toe of the levee to the mean water level at low tide. Quarry rock or mix varies from 10 lb to 200 lb per chunk, with a maximum size of 12 in. Cobbles are from 12 in. in diameter to 1½ in.

On the land side, the slope is one on two. Where there is no highway, only a patrol road, the crown width is held to 20 ft. Height varies, depending on tidal effect. The freeboard is 6 ft in the bypasses, 5 ft below Cache Slough and 3 ft above Cache Slough in the main river.

The erosion control work on the river started in 1917 when the first appropriations were made for the flood control work. Half the total cost is paid by state and local interests. Under the program the construction funds are provided by the federal government, and payment for rights of way and any relocation of utilities, roads, etc., is handled locally.

The project extends from Red Bluff on the upper Sacramento to Collinsville near the mouth of the river, a distance of some 200 mi. Some work also is done on the major tributaries, the Feather and American Rivers.

Rubber-asphalt use

More than 30 localities testing mixture in paving on experimental sections

More than 30 towns and cities across the country have put down experimental sections of asphalt-natural rubber pavement this year, and additional test units are to be laid before the year ends. This makes 1954 the best year yet for rubber roads, the Natural Rubber Bureau announced this week.

Some experimental pavements laid in this country under Bureau auspices are approaching an age at which performance can be appraised. It takes a good five years—more likely six or seven—to determine whether the added cost of rubber in the surface course pays off in increased life of the pavement. First Bureau pavements went down five years ago, but most of the experimental jobs have been constructed more recently.

Test sections using both natural rubber and artificial rubber are under observation in this country. Natural rubber has been introduced into the mix as latex and in pellet or power form; synthetic rubber, as pellets or power.

The proportion of rubber mixed with the asphalt runs up to about 5% average, it is understood, but Harry K. Fisher, road consultant to the Bureau, says that natural rubber power is introduced in the ratio of 1½% to 4%.

Natural rubber people concede that the addition of their product increases the cost of the surface course up to 20%. Observations to date generally indicate that natural rubber pavements are less susceptible to temperature changes and have less tendency to brittleness than plain asphalt mixes.

On the basis of field and laboratory results so far, the Natural Rubber Bureau is confident that increased life and lower maintenance costs of the experimental sections will more than compensate for the added construction expenditure.

The Bureau has released a new 42 min sound film on rubber asphalt pavement. The film is available without charge from the Bureau's Washington, D. C., office.

West Coast utility to build $37 million hydro project

Construction of Pacific Gas & Electric Co.'s $37.6 million hydroelectric project on the north fork of the Feather River in California is about to get under way.

The project will develop 106,000 kw of electricity. It will consist of a concrete diversion dam 60 ft high about 2 mi downstream from PG&E's Cresta powerhouse, a tunnel 6½ mi long with a surge chamber at the downstream end, two steel penstock pipes and a powerhouse with two generating units.

Test drilling and prospecting of foundation conditions at the powerhouse site is under way. Construction of the project tunnel is scheduled to begin in 1955.

PG&E now has six generating plants with an aggregate capacity of 382,000 kw in its Feather River system.

Indiana toll highway cost estimated at $186 million

A toll highway from Chicago to Indianapolis will cost at least $186 million, J. E. Greiner Co. of Baltimore has estimated for the Indiana Toll Road Commission.

Bonds will be sold before the end of this year for the 151-mi project, the Indiana commission said. Construction is slated to start in October, 1955, with completion in November, 1957.

The route will run from Gary, where a connection with the Indiana east-west toll road will be made, to Plainfield, 15 mi west of Indianapolis on U. S. 40.

Plans for the Chicago-Indianapolis route call for five maintenance areas, five interchanges, four service areas and 263 grade separations. There will be 23 stream crossings, including the Wabash River and 25 rail separations.

Army ready to ask bids for Missouri River work

Work will get under way shortly on Missouri River stabilization above Omaha, Neb. (ENR July 15, p. 24).

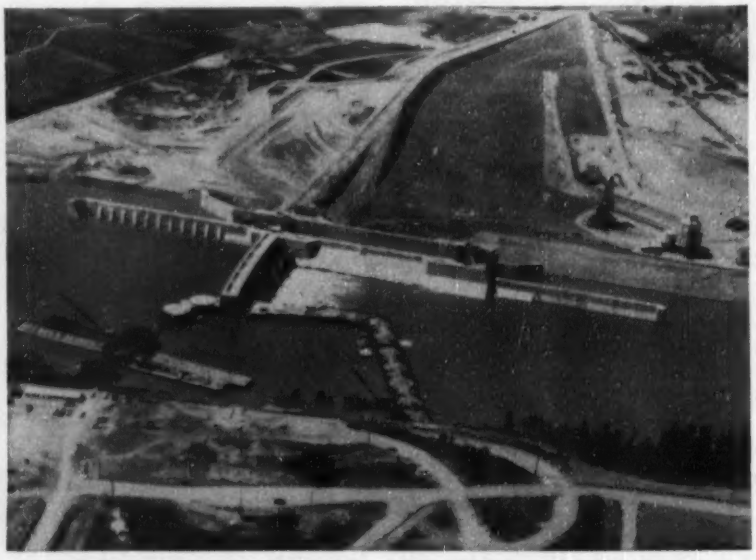
The Missouri River Division office of Army Engineers at Omaha has received Washington authority to begin work above Omaha, for which Congress this year voted $3 million.

The work, the first above Omaha since 1948, will be in three jobs.

- $500,000 for work on the waterfront at Sioux City, Ia. The job will be advertised in a few days.
- $500,000 for work immediately above Omaha. This job also will be advertised in a short time.
- $2 million to begin work upstream from Decatur, Neb., site of the "dry land" bridge.

The Decatur work will come in two contracts. The first calls for building a 1½ mi pile revetment about 1 mi above the bridge.

The other contract, to be advertised later this month, will advance construction enough so that the river can be swung beneath the bridge some time in 1956. The river now courses about a half mile to the east of the bridge.



Construction under way on Tennessee powerhouse

Cellular cofferdams mark location of a new $9-million powerhouse under construction on the Cumberland River at Old Hickory, Tenn. Power house will have four 25,000-kw generators and an annual energy output of 420 million kwh. Cofferdams are sheet steel piling, each filled with 4,500 cu yd of sand and aggregate. A total of at least 120,000 cu yd of concrete will be required for the project. Contractor is Farnsworth & Chambers Co., Inc., of Houston.

Atom strike ends

Both sides call walkout that idled over 17,000 at Portsmouth a "mistake"

A "mistake" that idled between 17,000 and 18,000 workers at the Atomic Energy Commission's huge Portsmouth, Ohio, installation for three days had been ironed out last week, and most of the work force—largely construction tradesmen—were back on the job again.

The "mistake" arose when local officials protested the assignment of nonunion workers of the Goodyear Atomic Corp. (a Goodyear Tire & Rubber subsidiary which will operate the plant on completion) to make changes in certain machinery on the site.

Electricians, pipefitters, ironworkers, carpenters and millwrights protested that the work was theirs, that they wouldn't work on construction with non-union men. In the immediately confused situation that resulted, building trades picket lines stopped all but about 3,000 office and special workers from reporting to their jobs.

Officials of Peter Kiewit & Sons Co., general contractor, called for intervention of national union officers, and national union headquarters reportedly answered that the strike was unauthorized.

A series of conferences over three days finally resulted in a statement by Guy Morrison, international representative of the Ironworkers, that the strike was the result of a "misunderstanding." Morrison indicated that the unions had agreed that the Goodyear men were doing maintenance, not construction, work, and so would return to their jobs. However, Morrison weighed in with a statement that "construction" work was being turned over to maintenance workers "too soon."

The abortive strike represented the first major labor trouble at the $2-billion installation since work started a year ago. Carefully worked out labor-management agreements on jurisdictional matters have apparently worked well.

Carpenters "recess" Hawaii organizing drive

Faced with what appeared to be a swiftly uniting employer front, carpenter union officials have recessed their attempts at large-scale organization of building tradesmen in Hawaii (ENR July 22, p. 27), it appeared this week.

John J. O'Donnell, an international representative of the union, left the islands for what local union officials said was "a brief business trip to the mainland," without achieving any concrete results.

The carpenters had announced some weeks ago that they would try for better organization in Hawaii—where the union shop has largely been kept out of labor contracts. One of their first moves was to throw picket lines around several construction jobs in Honolulu, notably the Princess Kaiulani Hotel in Waikiki and a new library for the University of Hawaii. Another move was to hold almost daily conferences with leaders of other construction trades unions, in an attempt to organize a mass drive for new contracts.

But the contractors—acting through the Hawaii Employers' Council—announced they would fight against the organization drive, and further that they had petitioned the National Labor Relations Board for an election among carpenters to determine union representation.

Bureau of Apprenticeship closes 31 field offices

The Labor Department's Apprenticeship Training program—operating mostly in the construction industry—has been handed a substantial setback.

Because of congressional appropriation cutbacks, Secretary of Labor James P. Mitchell has ordered 31 field offices of the federal Bureau of Apprenticeship to close down. This, in turn, has resulted in dismissal of 47 staff members, including 22 field representatives.

The elimination of the 31 field offices leaves about 150 still operating. At present 485 persons are working on the bureau's field staff—a 20% decline from two years ago.

The bureau's budget for fiscal 1955 is $3 million or about $130,000 less than for the previous 12 months.

Contractor is held liable on sub's scaffold failure

A general contractor has been held liable for an injury blamed on negligence of a subcontractor.

In Los Angeles, Louis Dominick, 52-year-old construction worker, was awarded $17,000 as compensation for an injury to his foot caused when a scaffold collapsed during construction of the Statler Hotel two years ago. Dominick charged the scaffold was improperly built and that it collapsed due to vibration from a mixer.

Robert E. McKee, general contractor, contended that he was not negligent because the platform was built by a subcontractor. But the superior court jury held he is liable for a subcontractor's work.

Labor briefs

• **Carpenter raise**—A two-step raise totalling 10 cents an hour was the key to ending (with a two-year contract) of a 74-day strike of carpenters at Reading, Pa. The men get 6½ cents immediately, 3½ cents more after June, 1955.

• **Union handled**—More than 25% of the $5 million railroad construction project to serve AEC's Hanford Works will be handled by building trades craftsmen, under terms of an agreement between building tradesmen and railroad brotherhoods.

• **Mediation ends walkout**—About 2,200 workers were back on the job at AEC's giant Clifty Falls plant (near Madison, Ind.), while the National Joint Board for Settlement of Jurisdictional Disputes sought an answer to carpenter claims that ironworkers were doing millwright work.

• **To end racketeering?**—Missouri's state senate will get a bill in 1955 to outlaw labor racketeering: they'd prohibit offering or accepting of bribes by labor officials; compel testimony by witnesses; force production of union and other records in court or before grand juries.

• **Cement masons back**—A new contract calling for a two-step, 12½-cent pay raise—7½ cents now, 5 in November—has ended disputes involving cement masons at Akron, Ohio.

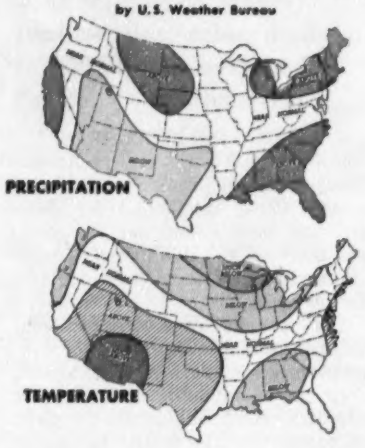
• **Operating engineers raise**—Wage increases and welfare benefits totalling 10 cents an hour were won for members of the Internation Union of Operating Engineers in individual contract renewal agreements with nine of 15 members of the Associated Civil Engineers and Land Surveyors of Santa Clara County, Calif.

Observed weather in 20 cities, compared with normals

	Precipitation, inches				Temperature, degrees			
	Aug. 1954	Departure fr. normal	8 mos. 1954	Departure fr. normal	Mean Aug. 54	Departure fr. normal	Av. daily Maximum	Av. daily Minimum
Atlanta	1.14	−2.67	24.25	−11.39	82.5	+3.9	93.6	71.4
Baltimore	4.10	−0.28	16.53	−11.50	73.2	−1.2	82.3	64.0
Birmingham	2.74	−1.81	27.91	−10.81	83.6	+4.5	95.7	71.5
Boston	5.64	+2.41	39.51	+12.95	70.1	−1.4	78.4	61.8
Chicago	5.91	+2.72	29.44	+6.79	73.3	+0.6	81.9	64.6
Cincinnati	6.54	+3.16	26.13	−2.24	74.6	−1.2	84.4	64.7
Cleveland	3.16	+0.52	24.50	+2.92	71.3	−0.6	81.3	61.2
Dallas	1.64	−0.19	18.99	−5.90	88.4	+2.6	99.8	77.0
Denver	0.54	−0.81	4.37	−5.91	74.0	+1.6	86.2	61.7
Detroit	2.07	−0.55	20.19	−1.40	70.3	−1.0	80.3	60.3
Kansas City	5.01	+1.12	21.08	−3.78	81.5	+2.5	91.3	71.6
Los Angeles	T	−0.02	10.80	+1.17	73.1	+0.2	81.5	64.7
Minneapolis	3.08	+0.29	17.86	−0.06	70.4	−1.1	80.5	60.2
New Orleans	4.05	−2.36	31.58	−13.91	85.2	+1.8	92.9	77.5
New York	6.58	+2.24	21.05	−8.12	71.7	−1.5	78.9	64.5
Philadelphia	6.03	+1.41	24.71	−4.84	74.0	−1.2	81.3	66.6
Pittsburgh	5.33	+3.25	25.77	−1.50	72.4	−0.7	81.4	63.4
St. Louis	3.93	+0.16	17.55	−8.69	80.0	+1.4	90.0	70.0
San Francisco	0.20	+0.19	11.39	−1.58	57.9	−1.4	62.4	53.3
Seattle	1.22	+0.35	24.11	+6.63	62.0	−3.2	68.7	55.3

30-DAY WEATHER OUTLOOK

Mid-September to mid-October
by U. S. Weather Bureau



Precipitation range in 20 cities, in inches

Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.
Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

City	Sept.	Mid Sept.-Mid Oct.	Oct.	Mid Oct.-Mid Nov.	Nov.	Mid Nov.-Mid Dec.	Dec.	Mid Dec.-Mid Jan.	Jan.	Mid Jan.-Mid Feb.	Feb.	Mid Feb.-Mid Mar.	Mar.	Mid Mar.-Mid Apr.
Atlanta	1.60/3.60	1.64/3.25	1.59/2.90	2.01/3.35	2.43/3.85	2.94/4.58	3.46/5.30	3.42/5.32	3.39/5.33	3.38/5.50	3.36/5.67	3.40/6.00	3.43/6.33	3.12/5.72
Baltimore	2.10/3.36	1.88/3.87	1.66/3.77	1.61/3.44	1.56/3.12	1.99/3.43	2.41/3.73	2.59/3.85	2.77/3.96	2.57/3.68	2.36/3.39	2.48/3.76	2.59/4.13	2.59/4.17
Birmingham	1.71/3.69	1.62/3.14	1.52/2.58	1.84/3.24	2.17/3.91	2.94/4.83	3.71/5.75	3.75/5.58	3.75/5.40	3.61/5.64	3.47/5.88	4.18/6.26	4.48/6.63	3.91/5.85
Boston	2.04/3.70	2.26/3.88	2.49/4.07	2.62/4.26	2.74/4.46	2.82/4.33	2.89/4.20	2.83/4.12	2.77/4.05	2.70/3.99	2.64/3.93	2.79/4.22	2.94/4.50	2.66/4.45
Chicago	2.09/3.75	1.85/3.42	1.80/3.10	1.80/2.95	1.80/2.80	1.46/2.62	1.32/2.45	1.30/2.28	1.29/2.10	1.40/2.16	1.52/2.23	1.76/2.67	1.99/3.11	2.09/3.12
Cincinnati	1.79/3.08	1.64/2.99†	1.49/2.90	1.74/3.26	1.99/3.67	2.14/3.48	2.29/3.28	2.32/3.54	2.34/3.80	2.07/3.40	1.80/3.00	2.10/3.64	2.39/4.29	2.66/3.94
Cleveland	2.30/3.41	2.03/3.29	1.74/3.16	1.79/2.97	1.82/2.77	1.76/2.68	1.70/2.56	1.65/2.58	1.50/2.60	1.55/2.52	1.51/2.43	1.81/2.71	2.10/2.98	2.45/3.13
Dallas	1.77/3.10	1.66/3.30	1.55/3.50	1.60/3.25	1.64/3.00	1.36/3.00	1.09/3.00	1.34/3.05	1.39/3.10	1.49/2.70	1.59/2.30	1.96/3.08	2.34/3.86	2.50/4.68
Denver	0.52/1.05	0.57/1.08	0.62/1.10	0.46/0.89	0.29/0.68	0.34/0.72	0.39/0.77	0.28/0.64	0.18/0.50	0.26/0.54	0.34/0.58	0.46/0.84	0.59/1.10	0.96/1.75
Detroit	1.83/3.44	1.72/3.02	1.63/2.60	1.70/2.66	1.77/2.73	1.70/2.66	1.64/2.60	1.63/2.50	1.62/2.40	1.56/2.45	1.51/2.50	2.14/2.64	1.77/2.78	1.78/2.76
Kansas City	2.99/5.00	2.34/4.54	1.69/4.07	1.48/3.21	1.27/2.35	1.02/1.95	0.77/1.55	0.68/1.48	0.59/1.42	0.80/1.66	0.99/1.90	1.29/2.40	1.59/2.90	1.99/3.15
Los Angeles	T/0.08	0.08/0.32	0.15/0.60	0.20/0.95	0.26/1.30	0.70/2.00	1.14/2.70	1.19/3.00	1.24/3.30	1.12/3.25	0.99/3.20	1.06/3.08	1.13/2.95	0.68/1.92
Minneapolis	2.29/3.85	1.79/3.15	1.29/2.45	0.98/2.01	0.67/1.37	0.63/1.44	0.57/1.30	0.60/1.19	0.64/1.08	0.58/1.08	0.52/1.08	0.75/1.38	0.98/1.67	1.34/2.14
New Orleans	3.11/5.50	2.55/4.81	1.99/4.12	2.34/4.40	2.69/4.67	2.96/4.92	3.24/5.17	3.36/5.28	3.49/5.40	3.14/5.05	2.79/4.70	3.00/5.00	3.22/5.30	2.94/5.15
New York	2.31/3.40	2.15/3.76	2.09/4.13	2.15/4.04	2.21/3.95	2.42/3.86	2.64/3.77	2.55/3.71	2.46/3.65	2.41/3.88	2.36/4.10	2.35/4.08	2.34/4.05	2.40/3.92
Philadelphia	2.09/3.90	2.04/3.85	1.99/3.80	2.18/3.65	2.36/3.50	2.50/3.70	2.64/3.90	2.60/3.80	2.57/3.70	2.57/3.69	2.57/3.68	2.60/3.84	2.62/4.00	2.56/3.91
Pittsburgh	1.87/2.80	1.96/3.00	2.09/3.20	1.96/2.96	1.84/2.73	1.96/3.00	2.09/3.27	2.12/3.20	2.14/3.13	1.96/2.98	1.77/2.83	2.06/3.15	2.34/3.47	2.32/3.44
St. Louis	2.09/3.58	1.89/3.42	1.69/3.25	1.78/3.28	1.86/3.30	1.70/3.05	1.64/2.80	1.52/2.75	1.39/2.70	1.48/2.80	1.57/2.90	1.92/3.42	2.27/3.95	2.43/3.88
San Francisco	0.00/0.26	0.10/0.78	0.19/1.20	1.12/2.28	1.04/3.30	1.62/4.28	2.19/5.25	2.34/5.12	2.49/5.00	2.24/4.86	1.99/4.71	1.96/4.13	1.94/3.55	1.30/2.54
Seattle	1.07/2.20	1.70/3.85	2.32/3.50	3.07/4.55	3.82/5.60	4.00/5.74	4.17/5.80	4.14/5.87	4.12/5.25	3.34/4.92	2.55/4.60	2.18/4.02	1.81/3.43	1.76/3.16

T—Traces (Less than 0.005 inches) † Lexington

Mean temperature range in 20 cities, in degrees F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.
Computed by U. S. Weather Bureau (based on historical records of actual temperature)

City	Sept.	Mid Sept.-Mid Oct.	Oct.	Mid Oct.-Mid Nov.	Nov.	Mid Nov.-Mid Dec.	Dec.	Mid Dec.-Mid Jan.	Jan.	Mid Jan.-Mid Feb.	Feb.	Mid Feb.-Mid Mar.	Mar.	Mid Mar.-Mid Apr.
Atlanta	72.9/75.4	68.2/70.2	62.3/63.8	56.6/58.2	51.1/52.7	46.6/48.4	44.0/46.0	48.3/50.3	43.5/45.5	44.0/46.4	45.1/47.9	47.5/50.1	51.2/53.6	55.9/58.0
Baltimore	67.1/69.4	62.2/64.4	56.4/58.3	50.9/52.6	45.6/47.0	40.2/42.0	35.8/37.8	34.2/36.1	32.9/35.7	32.4/36.0	34.6/38.0	38.1/41.7	42.0/45.7	46.6/49.4
Birmingham	73.3/75.6	68.5/70.7	62.2/64.2	56.2/58.5	50.7/53.2	46.5/48.9	44.3/46.5	43.4/46.1	43.5/46.5	44.4/47.6	46.0/49.4	48.8/51.7	52.4/54.7	56.6/58.5
Boston	63.3/65.4	58.9/61.0	54.2/56.2	49.3/51.3	43.6/45.6	36.8/39.2	31.2/34.0	28.9/31.9	27.9/31.2	26.4/29.6	27.8/30.0	31.4/34.0	35.6/38.6	41.1/43.3
Chicago	64.5/66.7	59.3/61.7	52.8/55.3	45.9/48.6	38.6/41.8	31.2/35.0	25.7/30.3	23.7/28.5	23.2/28.1	23.1/28.1	24.7/30.0	29.2/34.2	34.6/39.1	40.9/43.8
Cincinnati	66.5/68.4	61.2/63.3	54.9/57.1	48.6/50.9	42.0/44.5	35.9/39.1	31.4/35.2	30.1/34.4	29.8/34.6	29.9/34.4	31.6/36.0	35.2/39.2	39.6/43.1	45.4/48.1
Cleveland	64.7/67.1	59.5/61.8	53.5/55.6	47.1/49.3	40.5/42.7	34.3/37.2	29.3/32.9	27.3/30.9	26.9/30.5	26.0/29.6	26.2/29.7	29.8/33.7	34.7/38.8	40.3/43.2
Dallas	78.1/79.7	73.8/75.1	68.5/69.4	61.4/63.1	54.3/56.7	49.9/52.3	47.0/49.3	44.8/47.1	44.1/47.5	45.8/49.2	48.8/52.2	51.9/55.6	55.5/59.6	60.1/63.7
Denver	62.2/63.4	56.7/58.3	50.8/52.8	44.5/47.2	38.0/41.4	33.5/36.7	30.5/33.5	28.3/31.4	27.0/30.0	27.0/31.5	30.5/34.7	33.1/36.8	35.9/39.1	40.4/43.2
Detroit	63.0/65.6	57.8/60.2	51.9/54.1	45.8/47.9	39.2/41.1	32.9/35.3	27.9/30.9	25.6/28.5	23.8/27.7	24.2/27.8	24.6/28.9	27.9/32.1	33.1/37.2	39.3/42.1
Kansas City	69.7/71.9	64.4/67.0	58.1/61.2	50.7/53.9	42.6/45.9	36.7/40.1	32.4/35.9	30.4/33.0	30.0/31.9	30.2/33.6	32.2/37.1	37.3/41.2	41.9/45.9	48.6/51.3
Los Angeles	65.9/67.3	64.4/65.9	62.7/64.2	60.5/62.1	57.9/59.8	56.5/58.3	54.9/56.5	53.4/54.8	52.7/54.0	52.6/54.3	52.9/55.1	54.1/56.3	55.4/57.4	56.6/58.4
Minneapolis	61.0/63.6	55.5/58.3	48.8/51.7	40.6/40.3	30.9/36.0	22.5/28.1	16.2/22.3	13.8/18.4	15.4/16.5	13.3/17.7	15.0/20.8	21.7/25.9	29.9/32.5	37.3/40.3
New Orleans	78.5/79.7	75.1/76.5	70.5/71.9	64.6/66.8	59.0/61.9	56.0/58.5	54.6/56.8	53.2/56.0	52.6/56.0	54.0/61.4	55.9/59.3	57.6/60.8	60.6/63.0	63.4/65.7
New York	67.4/69.0	62.7/64.5	57.0/58.6	51.8/53.2	46.5/47.9	40.2/42.3	34.6/37.5	32.5/35.3	32.0/34.6	30.9/33.6	30.9/33.6	34.1/36.8	38.7/41.3	43.6/46.0
Philadelphia	66.8/68.5	61.6/63.5	55.6/57.6	50.3/52.3	45.3/47.2	39.9/42.0	35.1/37.3	32.7/35.4	31.8/35.0	31.1/34.3	32.3/35.3	36.4/39.2	40.8/43.5	45.6/47.9
Pittsburgh	64.0/65.9	58.8/60.9	53.0/54.4	46.2/48.2	40.3/42.0	34.0/36.4	29.5/32.6	27.8/31.0	26.9/30.1	26.4/30.5	26.9/32.0	30.5/35.4	36.0/40.6	43.9/46.5
St. Louis	69.1/71.2	64.0/66.45	58.1/60.5	51.0/53.9	43.6/46.9	37.8/41.3	33.3/37.1	30.9/35.1	30.1/34.7	31.3/35.7	33.7/38.1	37.8/41.8	42.9/46.3	48.6/51.5
San Francisco	61.3/62.8	60.4/62.0	58.5/60.2	57.9/59.9	53.8/55.0	50.9/52.3	48.7/50.2	47.1/48.9	46.9/49.1	47.3/50.8	50.0/51.7	51.0/52.8	52.4/55.1	52.4/54.2
Seattle	58.0/59.0	54.8/56.1	51.0/52.5	47.8/48.3	43.1/44.5	41.0/42.4	39.4/40.7	37.7/39.0	37.2/38.5	38.2/40.0	39.7/42.0	41.7/43.3	43.6/44.7	45.8/47.2

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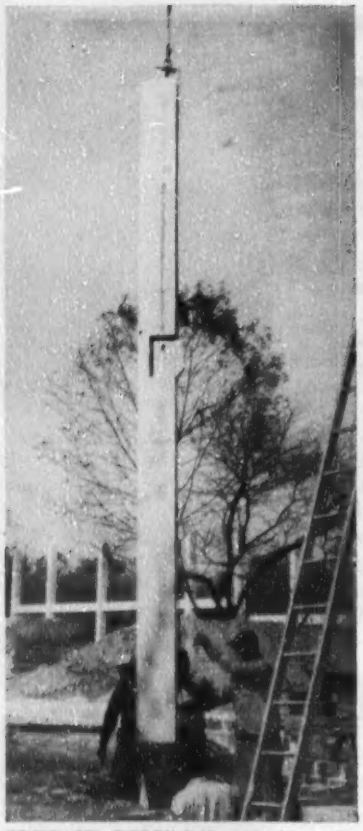
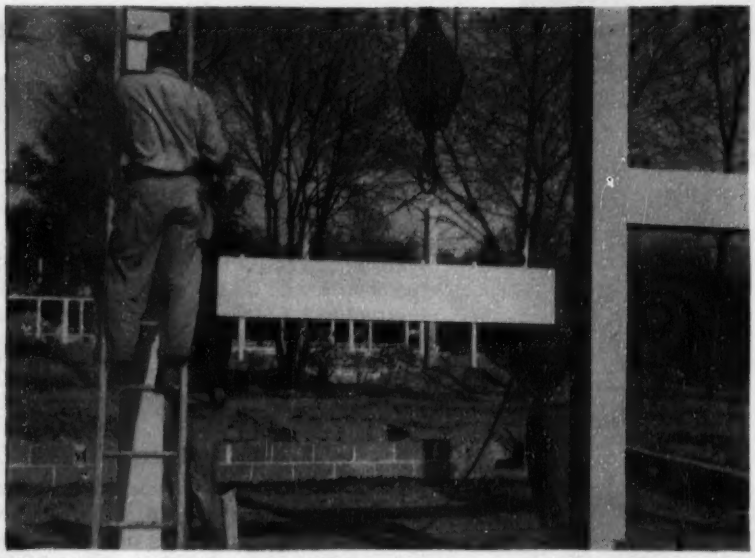


PRECAST COLUMNS with base plate welded to main reinforcement was erected in two-story lengths for Philadelphia housing project. They were plumbed by turning leveling nuts under the plate.



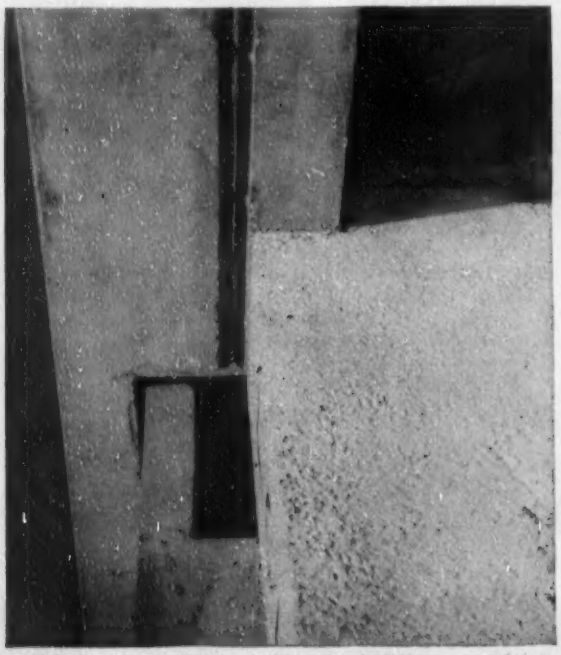
SPANDREL BEAM for the second floor was seated in recesses in the columns and bolted through the columns to adjoining beams.

Precast framing speeds erection of

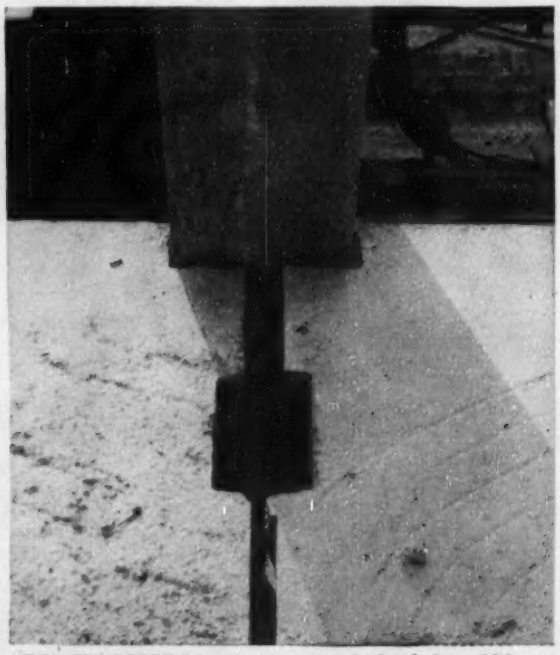
A low-rent housing project of noncombustible construction has been completed at a fast clip and at a cost of less than $8 per sq ft of floor area in Philadelphia, Pa. Use of precast concrete for framing and floor and roof decking is credited by the designers as a major factor in achieving this result.

Constructed for the Philadelphia Housing Authority, the Liddonfield Housing Project consists of 52 two-story buildings, providing 412 dwelling units, and community, management and central-heating buildings. The apartment houses are 20 ft wide and about 200 ft long. They contain 500,000 sq ft of floor area.

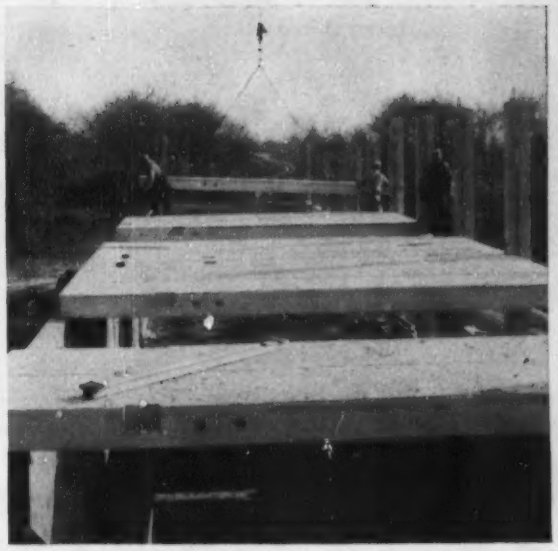
Floor and roof decking consists of 3-ft-wide channel-shape concrete slabs



POCKET was provided for bolting spandrel beams at columns. Later, it was grouted.



AT EACH COLUMN was a chase in which a bolt could be set, screwed in a column insert and then grouted in.



SECOND-FLOOR SLABS span 20 ft between rear walls and the precast beams.

STAIR HEADER BEAM was seated in recesses in floor slabs. It has a ledge to support slabs.

low-cost housing

with 10-in.-deep legs, which span the width of the building. At the rear, they are supported on brick bearing walls. At the front, they rest on precast concrete spandrel beams. These, in turn, are carried by 9x12-in. precast 2-story columns spaced 8 ft 9 in. c-c.

The precast units were fabricated by The Formigli Corp. at Berlin, N. J., and trucked 25 miles to the site, where the firm's field forces erected them. Concrete for columns and spandrel beams was designed for a 28-day strength of 5,000 psi with trap rock as aggregate. The slabs were made with expanded-slag aggregate, which yielded a concrete weighing 100 lb per cu ft and having a 28-day strength of 3,500 psi.

Construction sequence called for erection of columns and second-floor spandrel beams in one operation, after which rear walls were brought to second-floor elevation. Next, second-floor slabs were positioned. Then, roof spandrel beams were erected and the rear wall built to roof level. Finally, the roof slabs were installed, openings grouted and mortar keys and concrete topping placed, locking the structure. Two buildings went up per week.

The project was designed by Liddon-field Architects of Philadelphia. Stoffl-let & Tillotson was the general contractor. The general contract, including some site improvement and paved areas, was awarded for $2,688,000, a plumbing contract for $374,967, a heating contract for $661,199, and an electrical contract for $166,117—total $3,890,283.

UNDERSIDE OF SLABS required only painting for finishing. Plumbing passes through sleeves in channel legs.

TYPICAL BUILDING has brick walls and exposed precast concrete framing at the front. Precast roof slabs project out 2 ft to form a sunshade.

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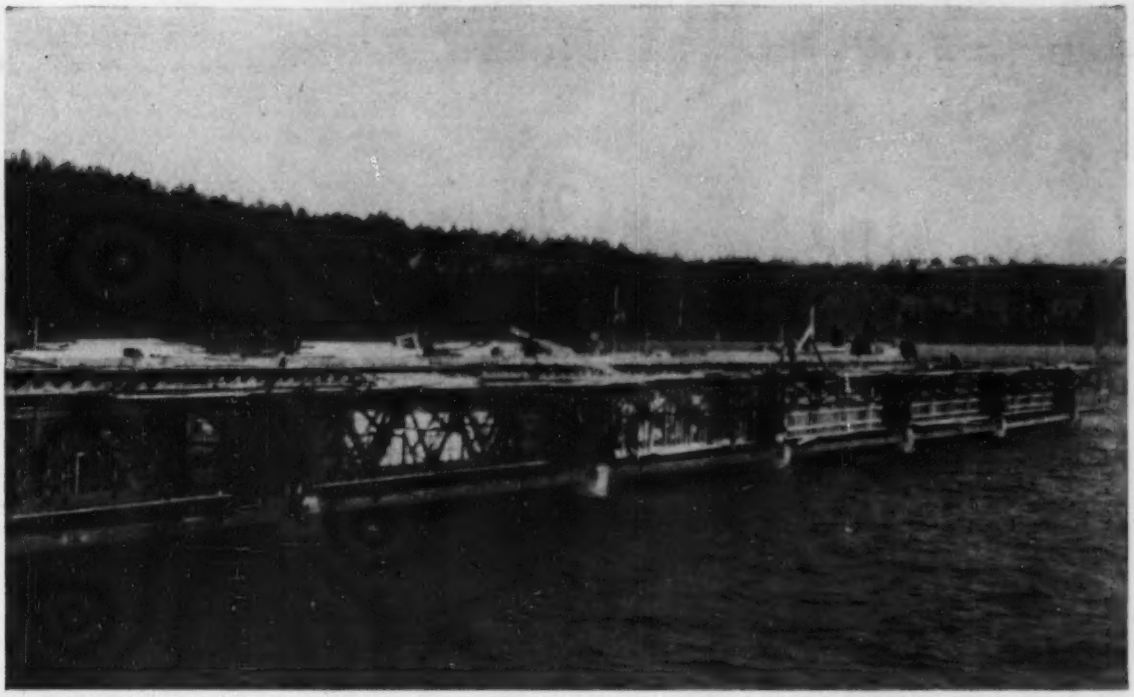


KANE TRUSSES, their steel visible at left, are being completed by encasement with concrete at right. Timbers spanning between foundation cylinders are lower chords of falsework trusses, web members of which have been removed for concrete formwork.

Wharfbuilder's challenge:

Bare-rock bottom is tough pier site

Concrete-cylinder foundations and a concrete-encased steel-truss frame for the deck were features of this unusual offshore pier built for a pulp company that wished to bring deep-draft ships to its installations near Nanaimo, Vancouver Island, B. C. Falsework was for work access only.

F. P. Wilson
Dominion Construction Co., Ltd.
Vancouver, B. C.

This wharf, 60x378 ft, is carried on sixteen 10-ft dia concrete cylinders spaced at 50 ft longitudinally and 40 ft transversely.

Cylinders were keyed to the bare-rock bottom by placing them in blasted recesses 5 ft deep and 16 ft dia. The bottom slopes 5% seaward, about 60 ft below mhw. Tidal range is 16 ft. This depth, accommodating deep-draft vessels, was available about 150 ft offshore from a bulkhead that could be used only for smaller craft. The offshore site is subject to waves 5 ft high, so the wharf construction job was not only an all-water one but a hazardous one.

Hazards were reduced, however, once deck structural work began. The framing system, being basically of steel trusses, needed no support other than that which could be provided by the permanent foundations. A falsework system, also supported by the cylinders, gave access to the deck construction work.

Called Kane trusses, the deck framing members are built up of angles, plates and bars disposed and sized for the respective stresses, and are entirely enclosed in concrete. Forms were suspended from the steel.

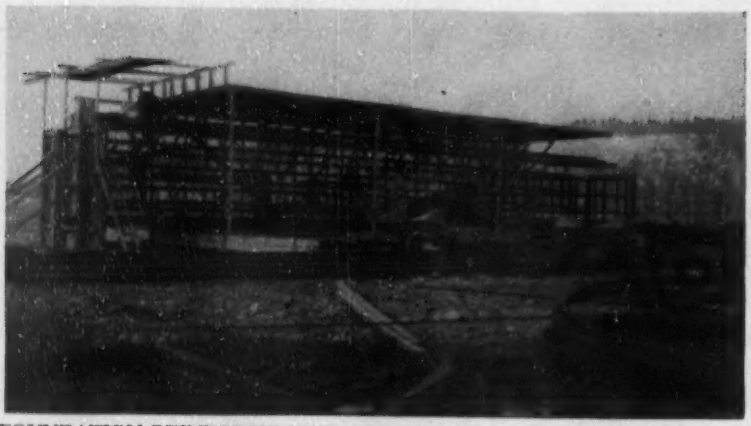
Eight 60-ft Kane trusses—here actually double trusses—lie transversely, each on a pair of foundation cylinders 40-ft apart, to form the pier's bents. Truss depth for these main members is 7 ft 4 in., concrete encasement bringing total size to 36x98 in. Longitudinal trusses, spanning 50 ft between foundation cylinders, are 7 ft 2 in. deep, their outside dimensions being 24x106 in. Intermediate transverse trusses, 30 in number, are 3 ft 10 in. deep, inside of 18x57 in. Deck thickness between members is 8 in.

• **Foundation design**—The concrete cylinders also were designed with open-water construction hazards in mind. Reinforcement was prefabricated to serve secondarily as a construction frame, and special devices were adopted to aid in centering the frame and forms, thus reducing diver work.

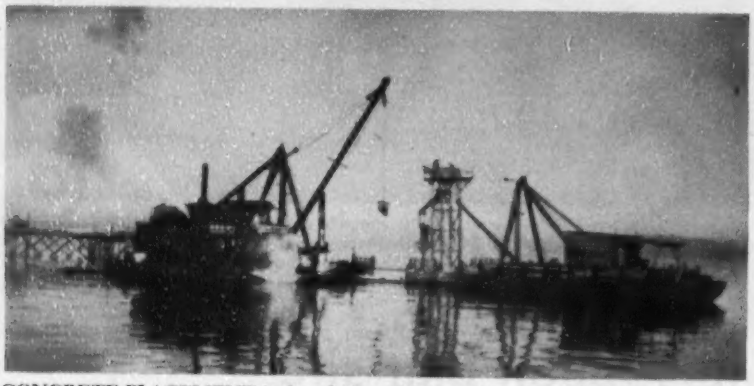
Each 10-ft cylinder was reinforced with fourteen 60-lb rails standing vertically in a circle. Rails were butt-welded and had welded fish plates sufficient to develop the full section of rail in tension. They were joined by rings of 1x3-in. bars at 20-ft centers, to form a cage. One-inch rods held the rings to true circle. A fourth ring about 3 ft from the lower end was tacked to the rails and 1-in. rods formed a spider. At the spider's center was an annular ring with a 6-in. hole attached to a cone. This was the first of the special centering devices. It fit over a stub centering pile as shown in the drawing, when the cage was placed.

The steel-cage reinforcement weighed 8 tons when assembled in a nearby yard. It was transported on

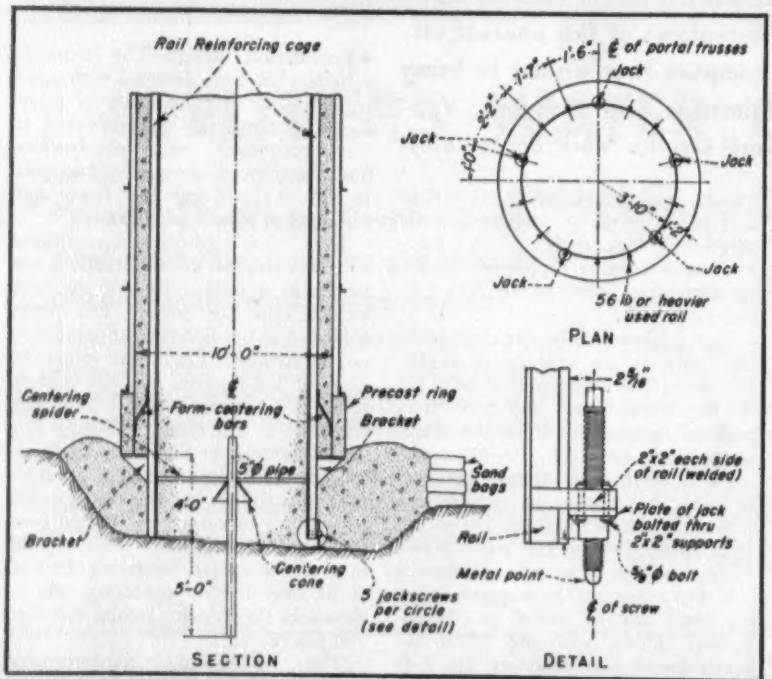
(*Continued on page 34*)



FOUNDATION REINFORCEMENT cage is assembled under shelter on shore. The assembly also acts as a bracing frame for cylinder-concrete forms.



CONCRETE PLACEMENT in foundation cylinders makes use of floating crane, which swings bucket to tremie tower from hopper on approach trestle at left.



CENTERING AND LEVELING devices make correct foundation positioning possible. Centering cone in reinforcing cage finds already-placed centering pin; leveling screws plumb cage; bent bars 90 deg apart center the forms after cage is in place.

track dollies to a wharf approach fill where it was picked up by derrick scow, taken to site and up-ended. It was set in position, adjusted for level (by special jacks, also illustrated) and held temporarily by cables to anchors.

Precast 10-ton anchors, cubes roughly 5 ft on a side, had rails projecting on all sides. They were attached by cable to a float, which permitted anchors to be placed in the most suitable positions and recovered by derrick as necessary. The first pull on these anchors sometimes upset them, depending on how they landed, but after this movement one could break a ¾-in. wire rope without their budging.

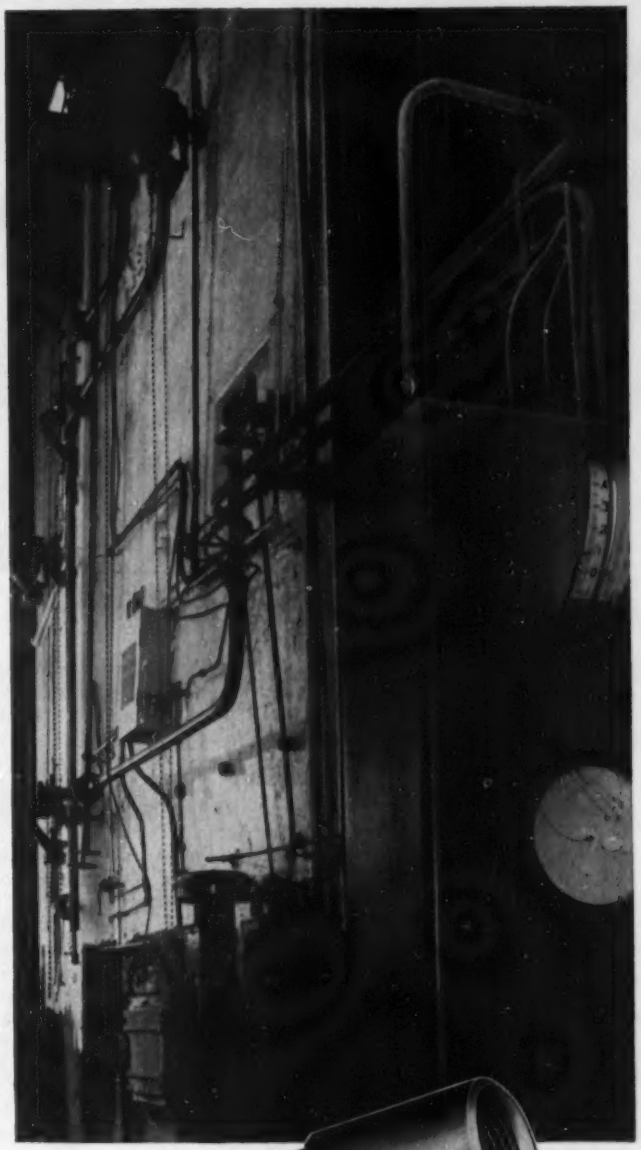
• **Cylinder forms**—Next came the cylinder form. Its base was a precast reinforced concrete ring of 10-ft inside diameter, 8 in. thick by 3 ft deep. This was prepared on a suitable platform with bolts set in the top to engage a 4x4-in. angle ring that became the bottom ring of a wood form assembly. The concrete ring weighed about five tons. Five steel circles for a 20-ft length of form weighed another ton and 4x6-in. staves (bolted to the rings) about four tons, making a lift of 10 tons, which was about the capacity of the derrick tackle without reeving up. Without the concrete ring, there was an excess buoyancy of some three tons per 20-ft unit of form, so that when the sections were joined it was necessary to jack down the form. Jacks got their reactions from lugs welded to the reinforcing cage. This actually converted the cage and form into one unit and materially assisted in centering a form. Another centering device was a bent bar. Four of these were welded to rails near their lower ends, as shown. Ninety degrees apart, they held the concrete ring in place.

Another feature of the form was the method of closing. Bolted joints diametrically opposed on the steel rings were aligned vertically, so that when the time for stripping came a diver could remove the bolts, along with horizontal-joint bolts and the nuts on concrete-ring anchor bolts, permitting half-cylinder form units to float to the surface. All assembly bolts were made in the dry.

• **Foundation fieldwork**—When reinforcing cage was in place, the bottom section of form was lifted over the top and sunk to near water level, where it was held by two 12x12-in. timbers between the tremie scow and another scow. A second form unit was then bolted on and a further partial form attached to bring form to required top elevation of 111.17 ft. No attempt was made to make forms tight, but on the northwest, when pouring during a

(Continued on page 36)

This YOLOY pipe has lasted 6 times longer

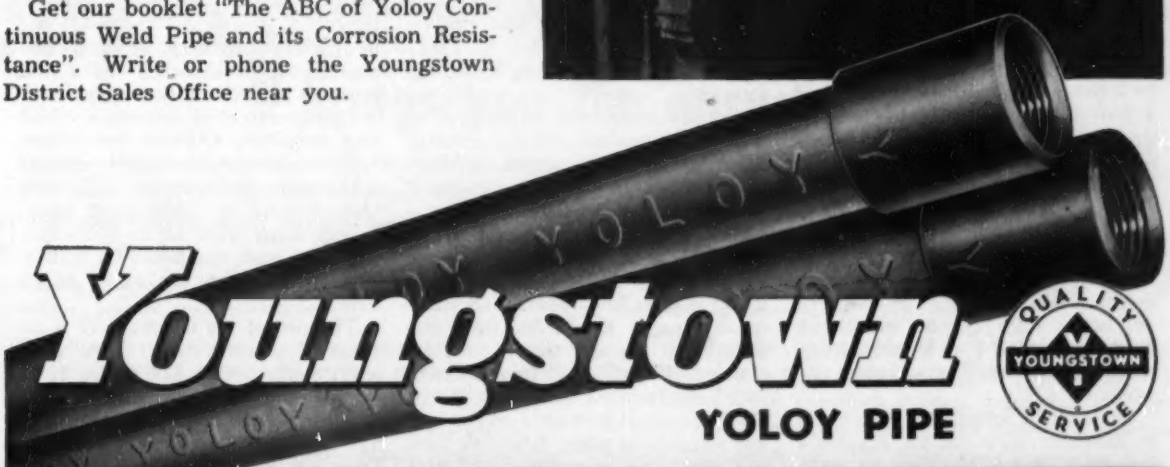


The pipe shown in the photograph of this large boiler carries steam for the "soot" and "fly ash" blower system in an Ohio electric plant. The service is so severe that regular carbon steel pipe had to be replaced as often as 60 days.

A solution for this corrosion problem was obtained by installing Yoloy pipe. Now, twelve months later, the Yoloy pipe is still in service—hasn't developed a single leak. It has lasted six times longer, and looks good for many months more.

Yoloy Continuous Weld Pipe is made from the same nickel-copper steel composition that has proved so successful in the oil, mining, railroad, chemical, trucking and other industries where resistance to corrosion and abrasion is of prime importance. It is now available in pipe sizes, from ½" to 4".

Get our booklet "The ABC of Yoloy Continuous Weld Pipe and its Corrosion Resistance". Write or phone the Youngstown District Sales Office near you.



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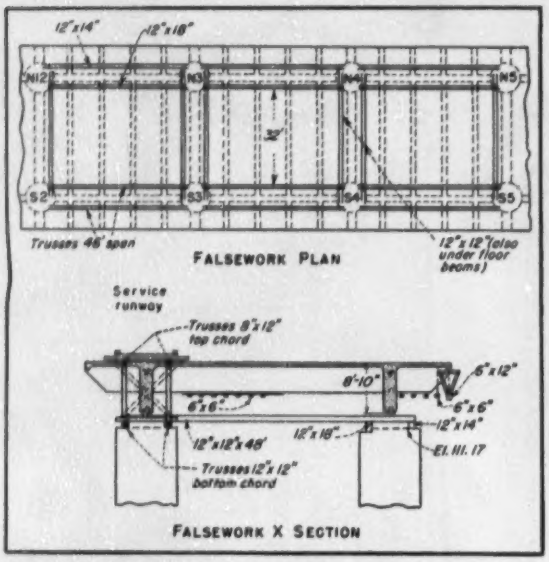


FALSEWORK for access to deck concreting includes truss-supported runway on inner row of cylinders.

RUNWAY carries service lines and vehicles along wharf site. Falsework on outer cylinders is partly installed.

storm from that direction, it was necessary to protect the exposed side near the waterline by tacking plywood outside of forms. Otherwise waves sloshing between the staves made a rough surface on newly-placed concrete.

Concrete was placed by a 10-in. tremie pipe fabricated of standard wrought iron pipe with flanges and rubber gaskets. This was made up of 10-ft lengths with stand-by lengths of 5 ft and 2 ft, for removal as concrete rose in the cylinder.

The tremie was prepared by wetting three or four paper cement sacks and placing them across the bottom of the tremie's hopper. These sacks were pushed down to water level and then with all hoppers full, concrete was poured into tremie as fast as possible, the tremie at this time resting on rock bottom. This procedure effected a perfect seal and the tremie was not jigged or lifted until some 15 cu yd of concrete was in place. When the concrete flowing out of tremie had risen and filled the foundation key excavation, a short rest was taken to allow initial set to take place. After this, the form was filled to prescribed height without stopping, at 25 cu yd per hour. Each cylinder pour took eight hours, total time for completing each cylinder installation being one week.

Some of the foundation holes, 16 ft in diameter, blew out on the lower side when blasted. The blow-out zones were sandbagged by diver, to complete 5-ft high foundation forms. The diver also watched the concreting progress to ensure that concrete came up around the precast concrete rings but did not cover the form-attachment bolts.

• **Deck construction**—After the 16 foundation cylinders were in place, there was no more need for in-water work. The top 5 ft of the 16-ft tide range did engulf part of the workings, to be sure, but there was plenty of low-range time for construction above top-of-cylinder (El. 111).

Falsework for deck concreting consisted of a pile trestle and 50-ft deck-truss bridge connecting the approach fill with the pier proper, and a support system on the foundation cylinders. Two decked-over Howe trusses, forming a service runway, spanned the inner row of cylinders. The outer row of cylinders was connected with 12x14s on the outside, and 12x18s on the inside; the trusses and timbers were connected transversely by 12x12 timbers under all transverse Kane-truss locations.

On this framework, a platform of 6x6 timbers was laid. All this material, being partially submerged at high water, had to be bolted down; but it was salvable on completion.

At the prescribed elevation of 111.17, four blocks of concrete were poured to El. 113. These served as seats for main longitudinal and transverse trusses. Kane-truss steel was brought to the site almost fully assembled. Forms for all truss concrete were hung from the steel work. When the longitudinal truss steel on the runway side was in place, falsework truss web members were removed for better concreting access and the runway load was imposed directly on the Kane-truss steel.

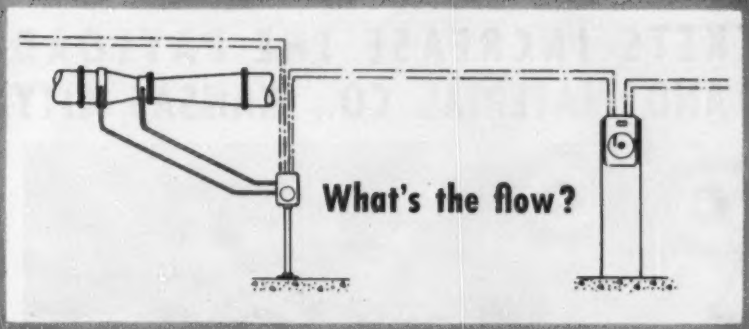
As the larger concrete beams are immersed at high water, pockets of compressed air could be formed under the deck by wave action. To avoid such pressures, holes were left in deck and beams to avoid any build up of pressure.

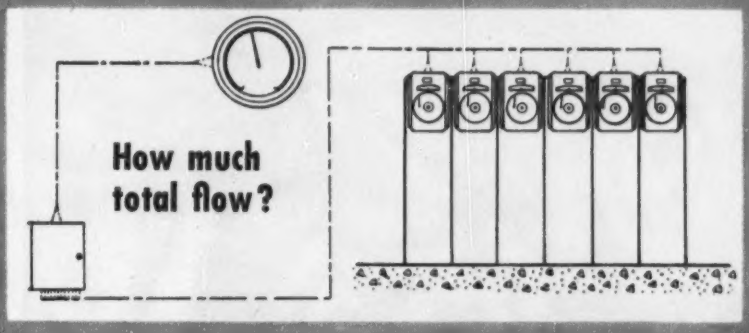
In review of the work, setting the first three piers was the most difficult part, as we were dependent wholly on tie lines which despite turnbuckles and takeups do not remain constant. After establishing a routine for the job and using the timber and timber falsework trusses as braces, it was much easier to line up the cylinders. The centering pile, 5 in. dia, was the key to the whole job. Fortunately, the drilling barge, which made a 6-in. hole for each pile, could be lined by transit from the shore. These holes controlled the wharf alignment. They were put in after the foundation pits had been cleaned out by clamshell and a stub pipe was put in each for reference.

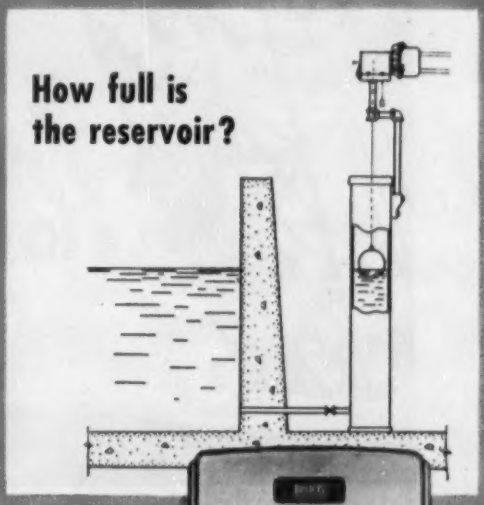
The quantities of concrete involved were as follows: Cylinder foundations 1,200 cubic yards, cylinder proper 2,333 cubic yards, deck 2,027 cubic yards—a total of 5,560 cubic yards. Specifications called for an 8-sack mix for tremie work, and 6-sack for balance —or 4,500 pounds per sq in. at 28 days.

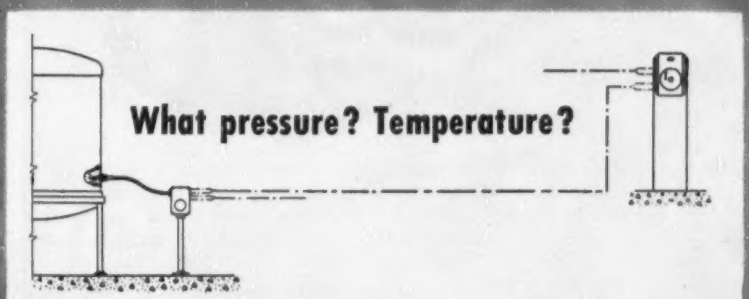
The cost of the wharf (there is no building superstructure above deck level) works out at $25 per sq ft or $1,350 per lin ft of wharf face.

Wharf design was by Messrs. Phillips, Barratt and Partners, Consulting Engineers, Vancouver, B. C., for H. A. Simmons, Ltd., consulting engineers, and H. R. MacMillan Export Company Limited (Pulp Division) at Harmac, near Nanaimo, Vancouver Island, B. C. Dominion Construction Co., Ltd., was the contractor.









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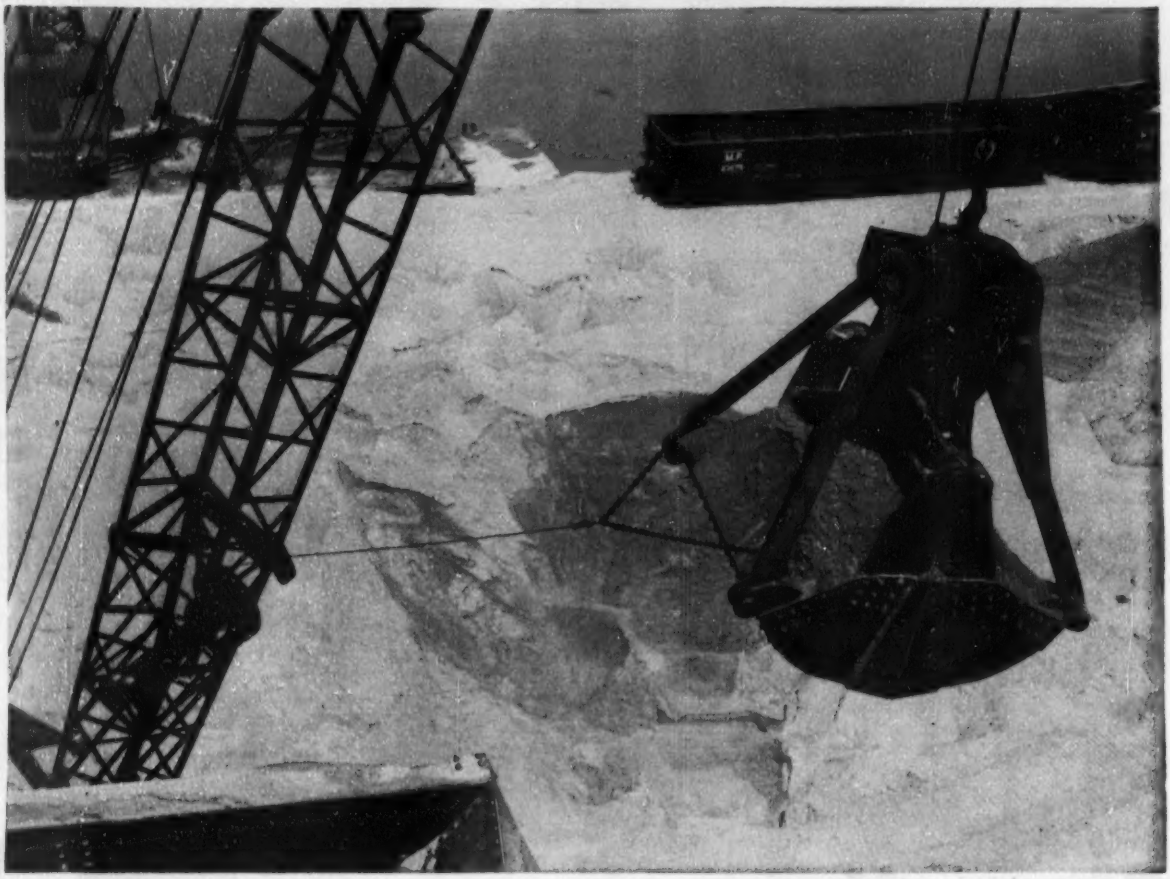
ERIE STRAYER BUCKETS INCREASE THE PAYLOAD FOR STEWART SAND AND MATERIAL CO., KANSAS CITY



One of 4 (2½ yd.) ERIE barge type buckets now in use at Stewart Sand & Material Co., in Kansas City, Mo. Plant is located on the banks of the Missouri. Concrete and asphalt sand is received by barge and railroad and stock piled for resale. The Stewart Company also owns an ERIE STRAYER Bin. Equipment sold by Funkhouser Machinery, Kansas City.

"We bought 4 ERIE Buckets because the Funkhouser people said they'd give us bigger payloads," reports Mr. G. E. Walton, superintendent of Stewart Sand and Material. "They're right! The ERIE Buckets give us about 5 tons per bite. We're completely satisfied," adds Mr. Walton.

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Corps of Engineers & ENR Staff photos

CONCRETE 19 IN. THICK is going into the ends of new runways at Lincoln Air Base in Nebraska. To obtain that depth of forms, contractor Adna Dobson set 15-in. deep steel forms on top of 4 in. of heavy planks.

Expanding an airbase to two-wing size

The adjective "big" seems inadequate, both in dimension and scope, in visualizing the magnitude of components making up a contemporary U. S. Air Force base. Some of the facilities stagger the imagination as to size, construction and operational requirements.

Out in the state of Nebraska the Corps of Engineers is rehabilitating and expanding the original medium-size Lincoln Air Base of World War II vintage. When completed the base will accommodate the training, maintenance and other operational requirements of two B-47 bomber wings of the U. S. Air Force's Strategic Air Command.

In addition to handling about 90 of the big bombers, the airfield will serve a Naval Air Force Training Station; the Nebraska Air National Guard; and the Nebraska National Guard Ground Forces. It will also continue to be the city's airport, which is served by two commercial air lines.

At full operational capacity, the Strategic Air Command expects to have about 6,000 personnel stationed at the base.

• **What makes it big**—Here are just a few of the major facilities that contribute bigness to the Lincoln Air Base—one of several large projects in a $500 million Air Force-Army construction program in the Missouri River Basin:

A total of 135 acres of heavy-duty concrete parking aprons, warm-up pads, and taxiways 14- to 20-in. thick; a 10,600x200-ft runway of both rigid and flexible pavement; two unique maintenance hangars 350x250x68-ft high, each capable of serving four big bombers at one time; and dormitories that will sleep nearly 4,000 airmen.

• **Flexible and rigid pavement**—There will be two principal runways at Lincoln Air Base—an existing Northwest-Southeast 8,000x200-ft runway, and the North-South 10,600-ft runway and connecting taxiways now under construction. An east-west runway was abandoned, and part of it converted into taxiways. The central 8,600 ft portion of the new runway is a flexible pavement, while the 1,000-ft section at each end is portland-cement concrete, 19-in. thick.

The flexible pavement varies from 33 in. to 52 in. in total thickness. It is made up of the following courses, from surface to subgrade:

A 1½-in. bituminous surface; a 2½-in. bituminous binder course; a 6-in. base course having a California Bearing Ratio (CBR) of 80; a 7-in. sub-base of 35 CBR; and a second subbase of 20 CBR—ranging in thickness from 16 in. to 35 in., depending on the load carrying capacity of the compacted subgrade.

• **Design load: 100,000 lb**—Both sections of pavement are designed for the 100,000-lb loading carried on each main landing gear of the big aircraft that will use the runways. All concrete pavement in the new runway, warm-up apron, taxiways and several acres of operational apron is placed on a 4-in. filter course of granular material, laid on the subgrade. Subgrade material is compacted to a 90% to 95% modified Proctor density.

The San-Ore Construction Co., and Amis Construction Co. hold a $3.5 million contract for construction of the new runway, warm-up apron, and 75-ft wide concrete taxiways with 25-ft bituminous shoulders. Their flexible pavement construction includes 196,000 sq yd of runway and 47,500 sq yd of taxiway. Their rigid pavement work includes 44,000 sq yd of runway, 33,000 sq yd of warm-up aprons, and 21,000 sq yd of taxiway.

Abel-Dobson-Robinson (a group of three contractors) hold a $2.3 million contract for the construction of a concrete operational apron, 286,000 sq yd in area and 19 in. thick. They also subcontracted the concrete paving in the San-Ore and Amis contract.

Major quantities in the two paving contracts include about 2,500,000 cu yd of excavation and borrow; 400,000 tons of base course and subbase material for flexible pavement; 150,000 cu yd of portland-cement concrete pavement; 60,000 tons of bituminous

(Continued on page 40)

binder and surfacing; and 50,000 tons of granular material under the rigid pavement.

• **Large-scale paving**—Paving operations on the concrete portions of the new runway, taxiways, warm-up and operational aprons follow a conventional pattern in several respects. But they are on a much larger scale than usually encountered on the average paving job.

The pavement is built in 25-ft strips, keyed together with shear keys. Transverse joints, ¼-in. thick and spaced at 25-ft intervals are sawed to a depth of one-sixth the thickness of the pavement. They are made with a double saw-cut, and sealed with a joint-sealing compound. There are no expansion joints except at intersections between runway and aprons. The concrete is cured with a membrane curing compound.

The contractor operates two 34-E and two 27-E pavers, working in pairs. Best day's production to date was 4,000 cu yd in a 10-hr day, using both outfits. Cement and aggregates to feed this battery of pavers is unloaded at a nearby siding about one mile in length. There are three cement bins and seven aggregate bins.

The stringout of paving equipment includes: Two pavers traveling on either side of the 25-ft paving lane, a spreader, gang-vibrator, transverse finishing machine, bullfloat or longitudinal finisher, finishing bridge for any hand finishing that is necessary, and a curing-compound spray machine. Diamond-bladed saws follow later to cut the contraction joints shortly after the concrete has set.

Mixing water is delivered to each paving outfit in 4,000-gal tank trucks, and transferred to smaller tanks pulled behind each paver. An air-entrainment additive is used, providing an average of 7½% of air in the concrete.

Side forms for the paving are of heavy-duty steel, 15-in. deep, with 4-in. timber planking attached to the bottom to build them up to the required height of 19 in.

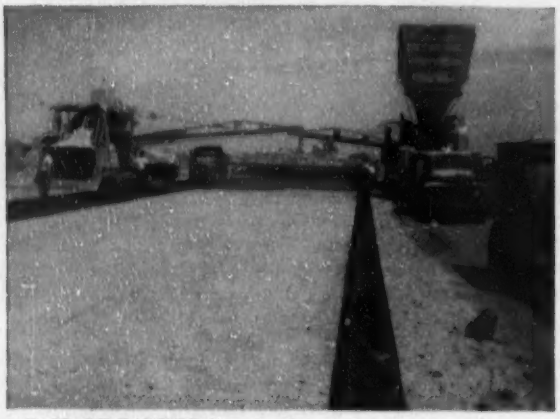
• **Maintenance hangars** — For sheer size, the two 350x250x68-ft high maintenance hangars, being constructed by the Olson Construction Co., Lincoln, under a $3.4 million contract, are in a class by themselves. They are among the largest structures built in recent years under the military construction program.

The identical hangars have several unique features. The 250-ft end walls are fixed, but the 350-ft long side walls are made up of a series of mechanically operated doors that roll back and nest in door pockets at the four corners of the hangars.

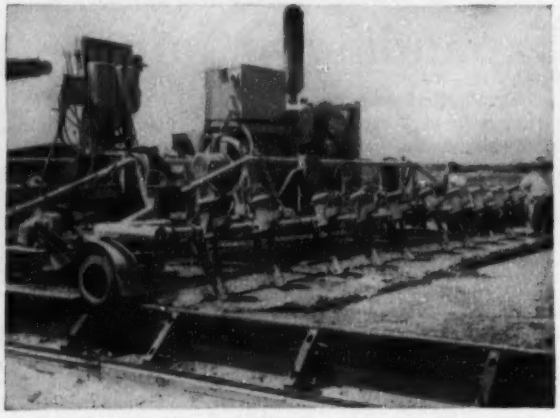
This provides an opening of 350 ft along both sides of the building between the endwalls, any part of which can be opened to unobstructed widths varying from zero to 220 ft. And it

(*Continued on page 42*)

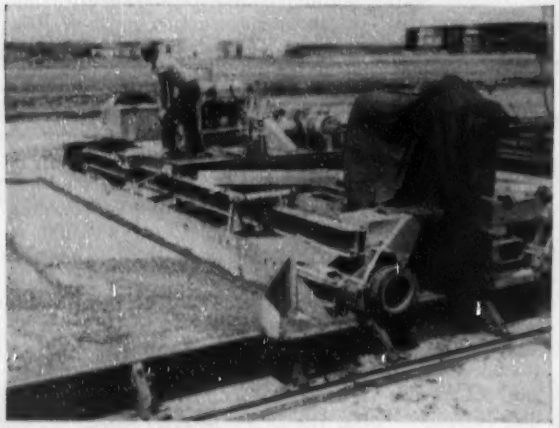
Pouring a 25-ft lane of 19-in thick concrete pavement:



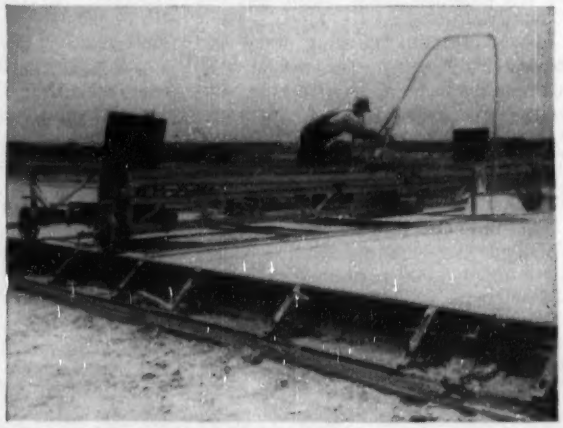
A PAIR OF PAVERS deposits the concrete between the forms with the spreader working close behind, then a . . .



GANG VIBRATOR, with 10 immersion-type units, thoroughly vibrates the low-slump concrete, so that a . . .



FINISHING MACHINE—riding on the heavy-duty steel forms built up to a 19-in. height by adding timber lagging on the bottom—finishes the concrete to grade, and finally a . . .



SELF PROPELLED RIG sprays the new concrete with a membrane curing compound. Transverse joint in the foreground was the end of the previous day's pour.

Another case history proving that . . .

Concrete Roads Deliver Unexcelled Service and Economy

Back in 1916, when the country was concerned with a world war and a presidential election, Fulton County, Ga., built a new concrete highway. No one could have foreseen that two world wars and ten presidential elections later that same road, now Bankhead Highway (U.S. 78), would still be serving—at ***low annual cost.***

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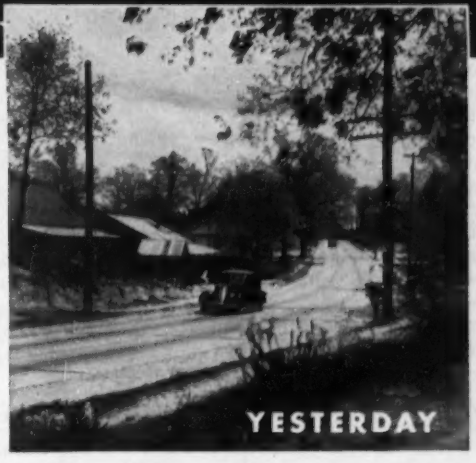


These two photos, taken from the same location in 1953 and 1938, show the increased traffic load Bankhead Highway now carries. A daily average of 7000 vehicles —⅓ of them commercial—use this section of the highway.

PORTLAND CEMENT ASSOCIATION Dept. 9d-17, 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

permits four big bombers to be nosed into the hangar at one time (two from each side) for maintenance and repair. The individual door leaves stand 64 ft high and are 30 ft wide, weighing about 15,000 lb each.

• **Big cantilevers**—Another unusual feature of the maintenance hangars is the structural framing that supports the insulated steel deck roof. Operational requirements call for a 90-ft clear bay running the full length of the building along each side; also, two 60-ft clear bays for the full width of the buildings at about their third-points.

This, together with the fact that the movable side walls are free standing and carry no roof load, necessitates the use of deep, heavy trusses to support the roof, and resist wind loads.

These 250-ft trusses cantilever out 94 ft at each end, over a central support about 62 ft wide. Over the transverse bays, arched framework carries the roof load down to adjacent transverse trusses.

All this complicated framing resulted in a total of 2,170 tons of structural steel being used in each hangar. They are supported on concrete piles.

• **Wintertime maintenance**—The big hangars are well insulated for full-time maintenance operation despite the coldest of weather. Endwalls are corrugated metal, insulated on the inside with ¾-in. of glass fiber held in place by vertical strips of metal, and bearing against horizontal girts which are fastened to the steel-frame endwall.

The hangars will be heated by radiant heating installed in the concrete floor. Radiant heating along the bottom of the movable doors also will melt ice and snow and prevent them from becoming inoperative in freezing weather.

• **Heavy-duty floor**—The floor slab of each hangar is unreinforced concrete, 20-in. thick. This thickness is required to support the 100,000-lb loading carried on each main landing gear of modern bomber and fuel tanker type aircraft. Both hangars are scheduled for completion this October.

Forty-four major contracts, totaling $28.5 million, have been awarded for new construction and rehabilitation work at the Lincoln Air Base since the program was started nearly two years ago.

Sixteen contracts totaling $13 million were awarded during the last half of 1952; 20 contracts for $7.8 million last year; and 8 contracts totaling $7.7 million have been awarded this year. Contracts remaining to be awarded this year included an addition to the airmen's service club and a security fence enclosing the area. A contract for relocating the Nebraska Air National Guard facilities is scheduled to be awarded next January. Completion date for the entire project has not yet been announced.

• **Work completed**—As seen by the table, nearly $13 million of construction is currently under way. Major contracts completed include:

Parking apron, $5.2 million; barracks, mess hall and administration building, $4.6 million; petroleum, oil and lubrication facilities, $1.6 million; bachelor officer quarters, $680,000; general utilities, $600,000; steam distribution, $519,000; general warehouse, $399,000; base and wing headquarters, $325,000; office, warehouse and shops for the Air Installation Officers, $272,000; a 400-man capacity armory, $267,000; structural steel for the multipurpose docks, $248,000; motor repair shop, $206,000; electrical distribution, $183,000; and a wash-rack, $116,000.

Small facilities that have been completed include: railroad construction, $127,000; telephone exchange, $90,000; family housing, $86,000; and a photographic laboratory, $40,000.

Contracts totaling $723,000 for the rehabilitation of existing facilities were awarded in 1952. They included the rehabilitation of runways and taxiways, electrical and water distribution systems; roads and a railroad, and two buildings.

• **Three-plane service station**—As their contract costs indicate, several of the major facilities completed or abuilding are in the larger class. For example, the multipurpose docks provide for routine maintenance and refueling of three big bombers at one time. The 160,000-sq yd parking apron, when completed, will be able to park 73 big planes. The operational area will have a total area of over 100 acres, when completed.

Aviation gasoline will be stored in 44 underground tanks having a gross storage capacity of nearly 2,000,000 gal. It will be handled by 7 pumping stations and the planes serviced by 20 hydrant-type refueling stations.

Water for all facilities on the base will be pumped from Lincoln, about 6 miles away. Sewage will be disposed of through a trunk line connecting with a sewer main of the Lancaster County sewage disposal system.

• **Man in charge**—Col. Ervin Wursten, USAF, commander of the 98th Air Base Group, Strategic Air Command, is in charge of Air Force operations at the Lincoln Air Base. Col. Wm. G. Gillespie is deputy base commander.

Chief functions of the Air Force in the over-all construction program include approving master plans and site layouts, securing scope authorizations and funds, and furnishing certain definitive drawings and non-standard designs, and making engineering reviews.

Design and construction is being performed by the Omaha District, Corps of Engineers. Col. Thomas J. Hayes, III, is in direct charge, reporting to Brig. Gen. W. E. Potter, Missouri River Division Engineer.

District Engineer personnel responsible for design and construction include: J. O. Ackerman, chief, and C. L. Hipp, assistant chief, of the engineering division; Ed Soucek, chief of the design branch; H. A. Sikso, chief of the foundation and materials branch; Lyman Bray, chief of materials and airfield paving; C. C. Cook, chief, and S. L. Price, assistant chief, of the construction division; and C. B. Stokes, chief of the military construction branch. Earl Fiala, is area engineer, and Almer L. Stark is assistant area engineer at the Lincoln Air Base.

Major contracts under construction

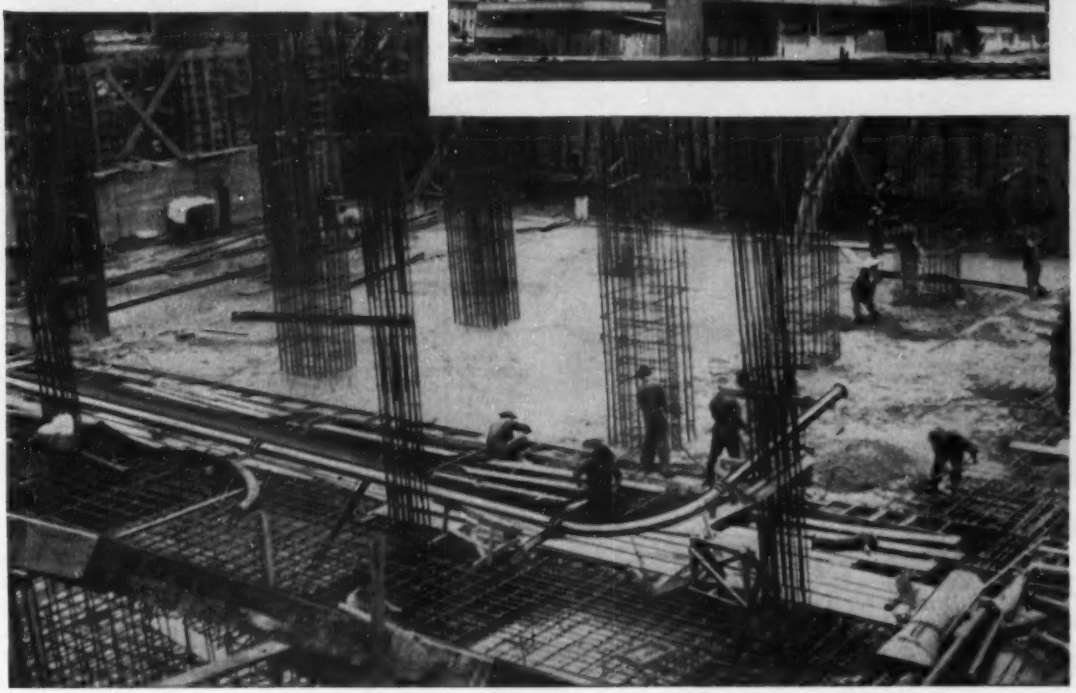
Item	Construction Start	Finish	Contract
Runway, parking apron & taxiways	Feb. 1954	July 1955	$ 3,561,000
2 Maintenance hangars	Feb. 1953	Oct. 1954	3,408,000
Operational apron	May 1954	Oct. 1954	2,363,000
3 multipurpose docks	May 1954	Aug. 1955	1,022,000
Expand heating plant	June 1953	June 1954	442,000
Officers mess, crash & fire station	June 1954	Jan. 1955	408,000
Armament & electronics shop	Sept. 1953	Aug. 1954	286,000
Pumping station & reservoir	Dec. 1953	Sept. 1954	179,000
Air Force chapel	Dec. 1953	Nov. 1954	147,000
Ammunition storage area	Sept. 1953	July 1954	145,000
Three bridges	May 1954	May 1955	143,000
Jet fuel storage	Dec. 1953	July 1954	109,000
Guardhouse & air police headquarters	Dec. 1953	Aug. 1954	85,000
Gas distribution system	Dec. 1953	Sept. 1954	64,000
Miscellaneous	.....	.....	127,000
	Total	.....	**$12,489,000**

Pan American Airways Builds Bogota Hotel...

Recently opened Hotel Tequendaura in Colombia's capital city of Bogota is the newest of Pan Am's chain of Latin American hotels. It's managed by their hotel-operating subsidiary, International Hotel Corp.

Designed by Chicago Architect...

Holabird, Root and Burgee of Chicago, internationally known architects, designed this impressive 17-story hotel.



PUMPCRETE® Worked Perfectly

says Bogota Contractor, Cuellar, Gomez and Cia., Ltd.

Rex Pumpcrete was used to place all the concrete for the structure... 14,400 cubic yards for foundations, supporting beams, columns and floors for this seventeen-story, $7,500,000 hotel, one of the most modern in Latin America. Two Model 160 Pumpcretes were used, sharing the pumping job for the first 10 floors... a height of 110 feet.

From the tenth floor on, one Pumpcrete was moved up to the 10th floor and the unit on the street level pumped into the hopper of the elevated Pumpcrete. This tandem pumping was very satisfactory, and the remaining 7 floors were pumped in this manner to an over-all height of 205 ft.

One floor was completed every five days.

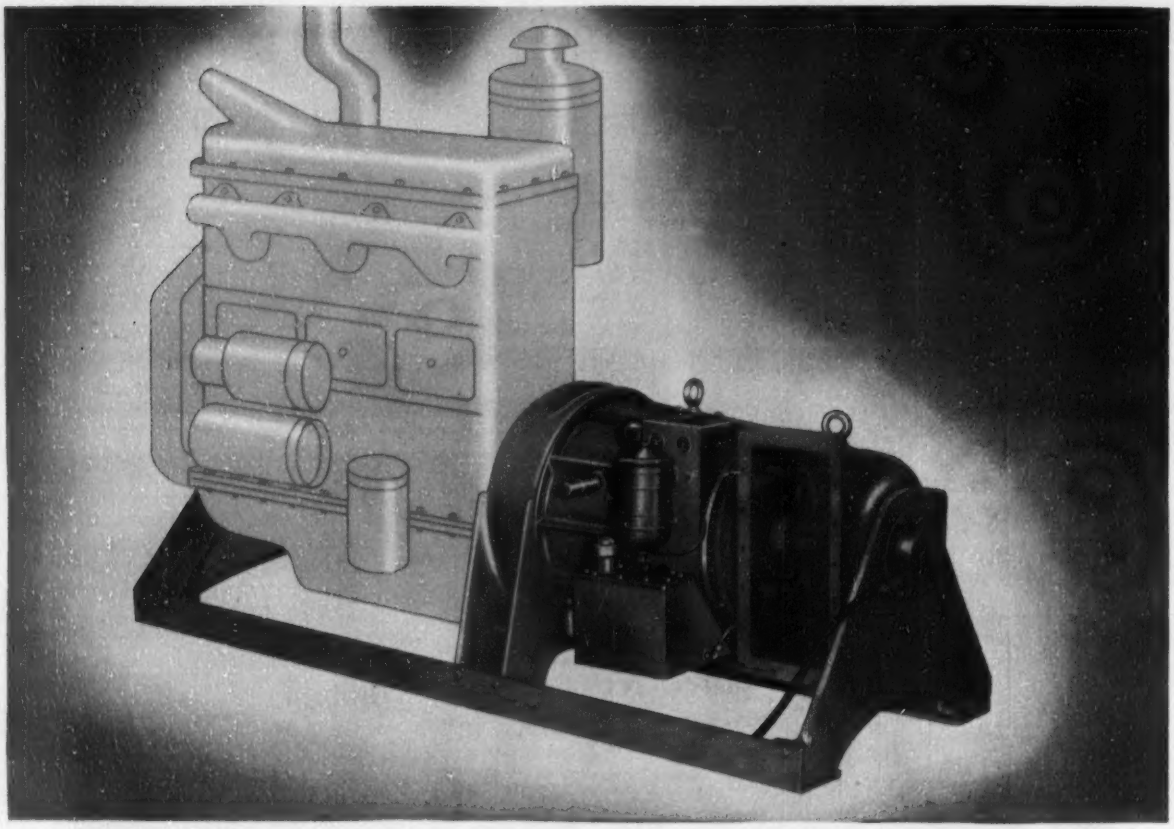
Said Georges Sokolow, chief engineer, "Pumpcrete worked perfectly and gave every satisfaction."

Why not investigate the job-speeding, cost-cutting possibilities of Pumpcrete for your next job. See your local Rex Distributor or write Chain Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT REX COMPANY®

CONSTRUCTION MACHINERY

MOTO-MIXERS® MIXERS PUMPS PUMPCRETES® PAVERS



Up to 1/3 more work with Torque Converter Drive

Twin Disc Three-Stage Torque Converters are in use throughout the construction industry, on the engines of leading manufacturers. Typical installations are shown here on a Cummins HIP-600 Diesel (above) and on a Waukesha Diesel (below).

A new power unit represents a major investment.

That's why it's so important that you get peak production and performance from it . . . with longest possible operating life . . . by equipping it with Torque Converter Drive.

With the Twin Disc Three-Stage Torque Converter design, here are a few of the advantages you will obtain: 1 Through *fluid* connection, with the *highest* torque multiplication available (up to 6:1 at stall), you'll *eliminate* overloading, lugging, or stalling. 2 Your engines will operate in *maximum* efficiency range at all times, with *more horsepower put to work.* 3 Power will *automatically* be matched to load demands. 4 Heavy loads will be picked up *smoothly,* without slipping the clutch. 5 Shock loads will be *absorbed,* saving engines, clutches, and drive line components. 6 With an *infinite* variety of ratios available, you'll get *accurate, positive* control . . . permitting delicate "inching" or "holding" under power.

Today, throughout the construction industry . . . on power shovels, draglines, cranes, hoists, crawler tractors, heavy-duty trucks, industrial locomotives . . . owners of powered equipment as well as major equipment manufacturers are proving the quickest way to increase production volume—speed work cycles, provide easier operation, and assure longer equipment life—is to install Twin Disc Torque Converter Drive.

Talk to your engine dealer—or write *now* to Twin Disc Clutch Company, Hydraulic Division, Rockford, Ill.—and get the *complete* story.

Whatever your engine preference, your dealer can equip it with a Twin Disc *Torque Converter!*

Whatever type gas or diesel power unit you're planning to order—from 40 to 650 hp—your engine dealer can equip it with a Twin Disc Three-Stage Torque Converter.

Three different Models of Twin Disc Industrial-Type Torque Converters are available. The Model IF is independent-mounted, with either narrow or wide chain housings on the input end. The Model F Torque Converter has a flange-type input, and bolts directly to the engine flywheel housing, with no clutch. The Model CF bolts directly to the engine flywheel housing, and provides a clutch between engine flywheel and converter pump wheel. Altogether, 20 different input, output combinations are offered, to match any engine hook-up.

Three Series, or sizes, are provided—the 10,000, 11,500, and 16,000—with seven capacities in each size through internal blading variations. As a result, your power unit can be equipped with a Twin Disc Three-Stage Torque Converter with the *exact* horsepower capacity required for greatest possible efficiency.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES
TWIN DISC

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin
Hydraulic Division, Rockford, Illinois

MUNICIPAL

Pleas for federal power turned down Omaha will build addition to plant

Unsuccessful in their bid for hydro power from the U. S. Government's Missouri River dams, Omaha Public Power District directors have taken the first step toward a 100,000-kw addition to the North Omaha Power Station.

The unit will be the largest ever installed in Nebraska. It will add 34% capacity to the district's system (present capacity is 290,000 kw).

It is expected to cost a minimum of $12 million and will be in operation by May 1, 1957 when additional power will be needed according to reports.

The unit will be added to the $17-million, 75,000 kw plant that went into service earlier this year.

Pioneer Service and Engineering Co., of Chicago, Ill.,—one of 10 applicant firms—was hired by the OPPD to engineer the project. Payment to the firm is not to exceed $625,000.

Decision to construct the generating plant came two weeks after the breakdown of six year's negotiation with the Bureau of Reclamation for power which it distributes from the upstream dams of the Army Engineers (ENR March 18, p. 25).

"After six years, it would appear that all means of securing Bureau of Reclamation power have been exhausted," said OPPD Board Chairman J. M. Harding.

The district had sought 40,000 kw of firm power on the basis that OPPD was a preference customer and that it would need additional supply capacity in 1957 or 1958.

In the original negotiations that started in 1948, OPPD requested that the bureau construct transmission facilities to deliver power to Omaha.

Nine separate contracts were drafted in an attempt to reach agreement. Finally, OPPD signed a contract and submitted it to the bureau.

Meanwhile, a new federal administration took office and set new power policies. One eliminated further construction of transmission lines by the federal government, so the contract was returned unsigned by the bureau.

Last December, OPPD made a new application on the basis that the power would be delivered at the bureau's substation near Sioux City, Ia.

Assuming that this application would be approved, OPPD had been conducting a study with Nebraska Public Power System, the Iowa Power and Light Co., and the Iowa Public Service Co. to determine the feasibility of construction and joint operation of the line from Sioux City to Omaha.

The bureau turned down the appeal on the basis that—by bureau standards—OPPD had adequate and efficient capacity to carry its 1958 load.

$1.5-million traffic survey for Chicago

A $1.5-million study will be made of the existing traffic patterns of all forms of transportation in the Chicago area to provide a basis for planning a contemplated 10-year multi-million dollar program of expressways and other improvements.

The unprecedented survey has been made possible by recent state legislation that permits municipalities, counties and the state to use motor fuel tax funds for survey purposes. In addition, federal funds will be available to defray a good share of the cost.

In approving release of state funds for the study, Illinois Gov. William G. Stratton declared: "No facts exist on the inter-relationship of automobile, truck, taxicab, air, interurban, steam railway and transit traffic."

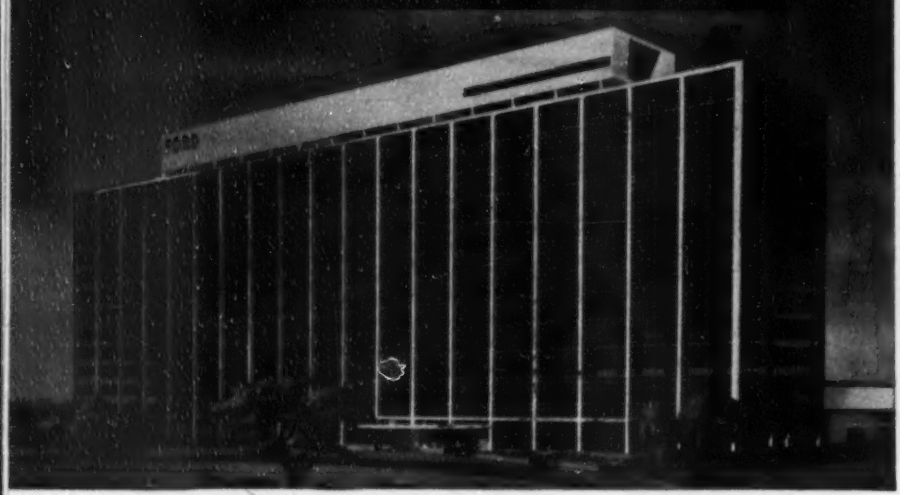
"Engineers are forced to use outdated statistics, inadequate data and ancient traffic counts when planning and constructing expressways and streets in the Chicago area. Chicago will be the first major city in America to undertake an all-inclusive coordinated traffic survey of such magnitude," he continued.

The $1.5 million spent on the study is less than 0.25 percent of the total expenditures planned for the Chicago transportation system. In the next ten years, according to Stratton, it is estimated that the system will be improved at a cost of about $800 million.

The study will be a depth survey with drivers of automobiles, trucks and buses, pedestrians and transients questioned concerning their traveling habit, their complaints and suggestions. Movements of airlines, railways, streetcars, taxicabs, trucks, buses and autos will be chartered.

(*Continued on page 46*)

Q-FLOOR helps make Ford's new Dearborn office building as modern as its cars



Ford Motor Company.....Dearborn, Michigan
Skidmore, Owings and Merrill.....Architects
Bryant & Detwiler Company....General Contractors
Weiskopf & Pickworth.....Structural Engineers

Shown above is the Ford Motor Company's magnificent new administration building soon to occupy a 90-acre site in Dearborn, Michigan. When it is completed, it will provide nearly 950,000 square feet of floor space, approximately 500,000 square feet of which will be Q-Floor and on which 3,000 employees will work in the comfort of the latest in modern lighting and air conditioning.

Architects Skidmore, Owings and Merrill carefully designed the building to prevent obsolescence due to changing conditions in the years to come. Interior partitions will be movable to provide maximum flexibility in floor arrangements, and Robertson Q-Floor construction will be used to permit complete freedom of power and telephone outlet changes and additions at minimum cost. Only with this weight-saving, cellular steel structural floor can every exposed 6' square area be the potential location of a convenience outlet.

Robertson Q-Floor construction also saves time and money. Its weight-saving factor means lower cost of foundation and structural steel. It immediately becomes a safe storage and working platform for the benefit of all trades. And because no combustible forms and falsework are required for the concrete fill, there has never been a construction fire on a Q-Floor job.

With all these remarkable features, it is easy to see why Q-Floor will help make and keep this fine new building as modern as the Ford of tomorrow.

Use the coupon on the opposite page to write for literature.

Robertson

Q-Floor

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In England—Robertson Thain Limited, Ellesmere Port, Cheshire
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World-Wide Building Service

• **Here's what the material will show**—If the survey succeeds as planned engineers will have a tool with which to:

1) Determine the effect of superhighway construction on existing streets.

2) Provide traffic improvements where expressways will not be built.

3) Permit planning groups to develop streets in best location with adequate traffic capacities.

4) Learn how to coordinate automobile transportation with transit operations.

5) Pin down types and volumes of traffic generated by industrial, commercial and residential land uses.

6) Establish new traffic patterns for merchandising centers.

By no means a mere traffic survey, Stratton emphasizes its role "as a study involving movement of people and cargo in an effort to coordinate media of transportation, so that each will operate with maximum efficiency, with as little friction and overlapping as possible—to the end that the public will be better served and tax money more wisely spent."

54 bridges unsafe

Survey jars officials as posting is urged

Philadelphia city officials have disclosed that a year-long survey has revealed that 54 bridges within the city limits are unsafe for carrying authorized 20-ton loads.

The survey was conducted by the Department of Streets, with the cooperation of the Pennsylvania Motor Truck Assn., and with the State Highway Department acting as consultant.

Officials, expressing grave concern over the survey findings, attributed the condition to neglect. But, they pointed out that, while many of the bridges are maintained by the city, others are the responsibility of railroads, the state or adjoining counties.

Streets Commissioner Henry D. Harral said that it would be impractical to re-post all bridges with the load limits which the survey indicates to be their capacity.

To reduce the load limit on all bridges would disrupt traffic, and seriously interfere with the business life of the city, he explained.

Consequently, under an agreement with the PMTA, only about half of the bridges will be posted with new load limits. The remainder will continue to carry the legally-authorized 20-ton load limits.

Harral states that while he does not

expect a general collapse of the structures, he is concerned about the situation. Philadelphia's Managing Director Robert K. Sawyer estimated that it will cost $7.3 million to put the bridges in shape to carry maximum loads. The city would be obligated to spend $5.8 million of this, with the state, adjoining counties and commercial interests furnishing the rest.

The disclosure has contributed another headache to the 1955 budget, according to Sawyer. Next year's expenses are expected to run close to anticipated income, thus making it necessary to revamp the budget setup in order to provide at least part of the

(*Continued on page 50*)

Century Club intiates new member city

Sacramento, Calif., has become the 43rd city designated as a member of the Century Club, an organization of cities that have had the same cast iron water mains in service for 100 years or longer.

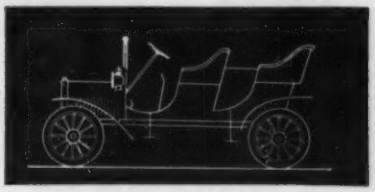
The California capital is the only city west of St. Louis to be selected for membership in the organization.

Here inspecting a portion of the pipe uncovered during commemorative ceremonies are; left to right, kneeling, Councilmen Edgar A. Sayre, Jr., Nicholas J. Culjis; E. A. Bahnfleth and Bert E. Geisreiter; standing, J. C. Jennings, assistant city engineer; Ray W. Jones, assistant superintendent of the water division; Carl M. Hoskinson, Superintendent of the Sacramento water division and Norman Squires, supervisor of the water division.

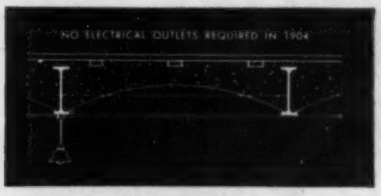
Floors, like Fords, have seen change over the years

For over a half century the automobile has been a chief topic of conversation, and the improvements made over the years have been critically analyzed by every prospective purchaser.

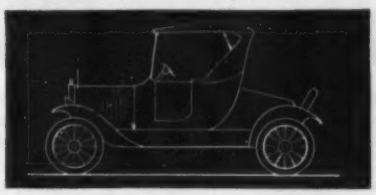
As every architect and engineer well knows, the floor construction of office buildings has undergone a similar period of development, moving from cumbersome tile arch construction to the modern electrically available cellular steel floor. The basic chronology of floors and Fords up through Q-Floor and the Y-Block engine is shown below.



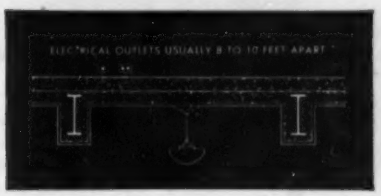
1904 **The 4-cylinder, 20-horsepower forerunner of the fabulous Model T was a sensation this year. It featured two speeds forward, gas headlamps, and a handy crank for starting.**



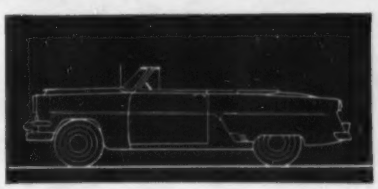
1904 **This year, electricity was just finding its way into commercial buildings and was used only for lighting. Floor construction, at best, was a dead monolithic slab.**



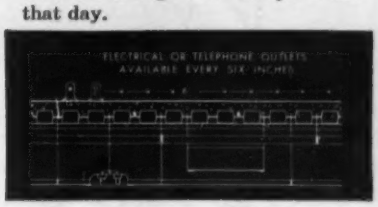
1924 **Ford was now producing as many as 2,000,000 cars a year, all painted black. Wide tolerances in bearings, gears, and other interchangeable parts made every Model T owner his own repairman.**



1924 **The increasing use of electricity found many office buildings sadly lacking in convenience outlets for the new electrical equipment. Early attempts at "in-the-floor wiring" were adequate for that day.**



1954 **Today's car is designed for comfort and convenience. There is little left to do but steer. Mechanically, it is made to cope with every requirement of its owner.**



1954 **The finest of today's new office buildings are built with modern Q-Floor because it offers the greatest electrical and structural advantages of any floor system known.**

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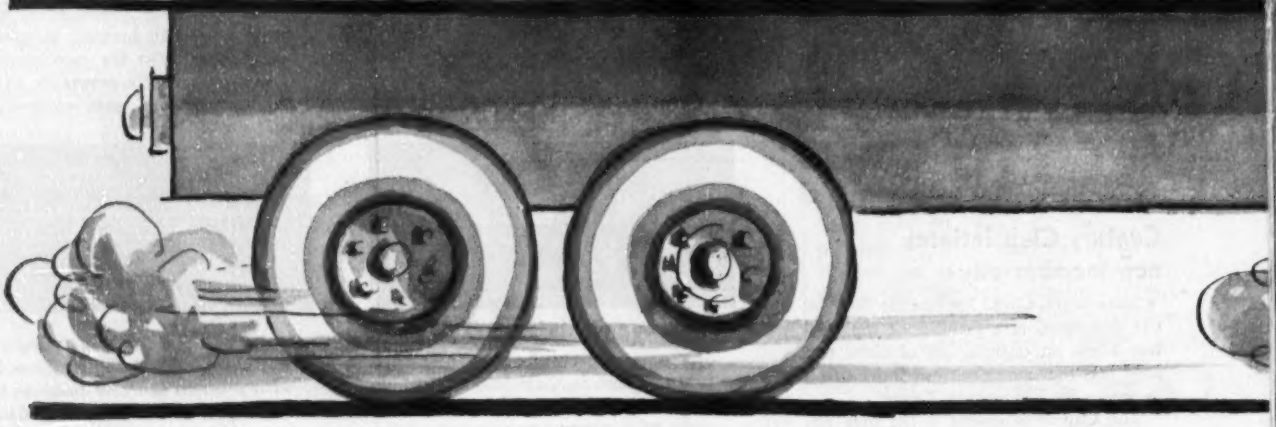
(A brief case) by Mr. Friendly

1. **NEW HIGHWAY, PITTSBURGH, PA.** The Harrison Construction Company excavated 1,309,406 yards of earth and rock, paved 38,000 square yards and installed 24,268 ft. of drainage, sewer, water and service pipes on this stretch.

2. **EARTH FILL DAM** with water tunnel and power house at Bear Creek Falls development, North Carolina . . . constructed by the Harrison people with remarkably little trouble for such a tremendous job.



MORAL:

Blasting mountains to smithereens . . .
Cutting down hills with great machines . . .
With dynamite, rocks and tons of dirt
You've got to play safe or you're going to get hurt!

. . . For 14 solid, satisfactory years the famous Harrison Construction Company of Pittsburgh, Pa. has worked closely with American Mutual Safety Engineers.

In the construction of dams, airfields, streets and highways, foundations and abutments, they know that advance planning for safety is the surest way to fewer accidents and lower insurance premiums.

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3. **NEW HIGHWAY AND TRAFFIC INTERCHANGE, Elizabeth, Pa. . . . another example of a heavy construction Harrison job where safety first meant just plain good business!**

If you're interested in a service that can help lower your own operating costs... by reducing accidents, premiums and by savings through dividends, write for your free copy of, "Foremanship and Accident Prevention in Construction," American Mutual Liability Insurance Company, Dept. O-129, 142 Berkeley Street, Boston 16, Mass.

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Service from salaried representatives in 78 offices! *Savings from regular substantial dividends!*

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STAINLESS STEEL Grating and Stair Treads — new boon to industries where grating must withstand acids and corrosion! KERRIGAN *Weldforged* Grating — one-piece, inseparable units, made in all types A.I.S.I. and S.A.E. Standard Stainless and heat-resisting steels and electronically resistance welded to stand up under the severest kind of punishment AND FABRICATED TO BE FREE OF ANY "ACID-TRAP" RIVETS OR NOTCHES!

Kerrigan also offers you a complete *custom* service: shop drawings are sent for your approval and grating is fabricated to your exact specifications (with finished grating match-marked for easy installation). Let us send you detailed information. We shall welcome your inquiries on this new Stainless Steel Grating.

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General Sales Office — 274 Madison Ave., New York City

money needed for a bridge repair program.

Included among the 54 bridges requiring major repairs are:

1. Grays Ferry Avenue Bridge over the Schuylkill; cost of repairs $2.5 million. Present rating—13 tons.
2. Spring Garden St. over the Schuylkill; lower deck repairs $1.1 million; rated 13 tons.
3. Broad St. over Reading Co. tracks; $815,000; rated 13 tons.
4. Seven bridges over Reading Co. tracks, north of Callowhill St.; $1 million; rated 10 tons.
5. Chestnut St. over Schuylkill River (new deck); $400,000; rated 10 tons.
6. Stenton Ave. over Pennsylvania RR at Mermaid Lane; $60,000; rated 13 tons.

Each of the other 42 structures are posted as unsafe for a 20 ton load.

Vote is on spending

Millions for improvement will load Calif. ballots

As November 2 approaches, California counties are preparing for a spending spree. Ballots will be loaded with bond issues slated for public improvements.

Most recently slated for the voters will be a $17-million bond issue in Orange County and a $15-million issue for Los Angeles County.

The latter county recently dropped plans for a $265-million bond issue for secondary county roads when it was argued that an extensive county road program was not necessary in view of state freeway construction.

Before it was dropped altogether, the bond issue had been pared from the $403 million advocated by Supervisor Kenneth Hahn last spring.

Los Angeles voters, according to the board of supervisors, will be faced with some $880 million in county, state and city bonds in the election.

• **Capital city program**—The Sacramento Redevelopment Agency's efforts toward slum clearance moved into high gear with approval of a $1.5-million bond issue that will help pay the city's share of a 15-block slum clearance project. The council previously had approved preliminary plans for the operation.

If the voters approve the issue, the city will pay one-third of the total cost of clearing and reselling land in the vicinity of the city's capitol mall. The remaining two-thirds will be furnished by the federal government.

According to City Manager Bartley W. Cavanaugh, extra tax revenue resulting from the improvements would more than meet interest and principal payments on the bonds.

• **Some opposition**—The clearance of the 15-block area—one stage of a 62-block program called for in Sacramento's master plan has been the source of major controversy for months.

Business men in the area objected to the expenditure, but most of the opposition was removed when the council assured these men that they would have a priority in the purchase of redevelopment properties.

According to the master plan, established in 1951 (ENR Mar. 1, 1951, p. 96) the total program will be completed by 1960 and expenditure is expected to reach $10 million.

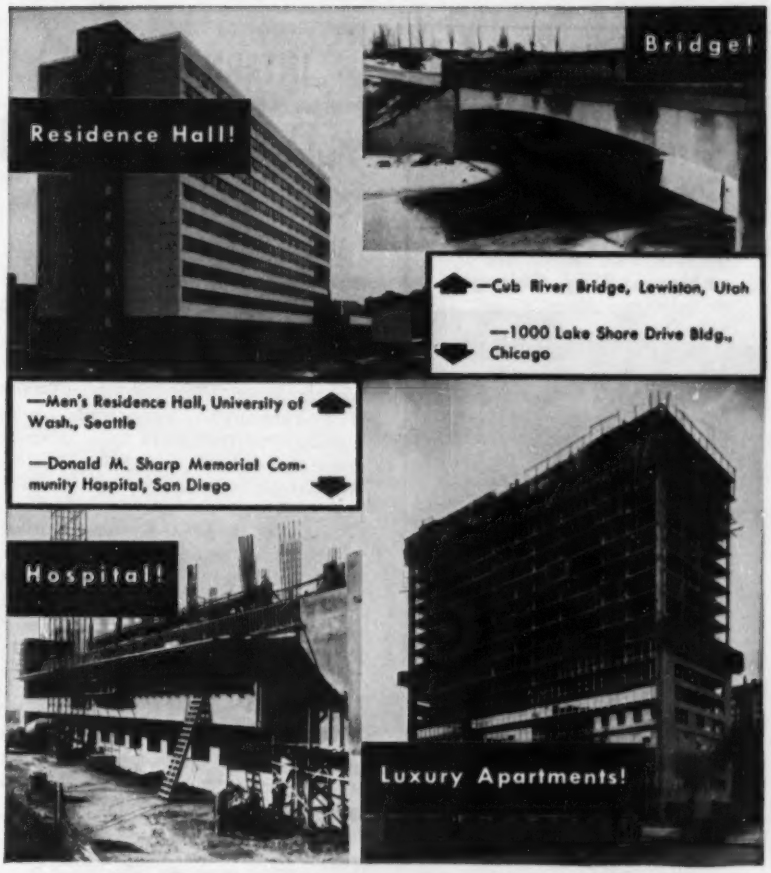
Joseph T. Bill, director of the SRA, believes that if all goes well and the bond issue is approved by voters, actual work on the project can begin by next spring.

Municipal briefs . . .

• **More recreation for Bethlehemites**—As result of a survey in Bethlehem, Pa., planning and civic groups have recommended an $837,000 program to include 16 new playgrounds, two swimming pools, 16 tennis courts, night lighting for some of the playgrounds and additional park and picnic areas.

• **Two plus two equals $3 million**—The addition of two lanes for two miles of two-lane Outer Market St. and Portola Dr. in San Francisco, Calif., is going to cost $3.2 million, now that the project has been approved by the city's board of supervisors. About 40% of the route already has been widened. When completed there will be a total of 3¼ miles of four-lane pavement, with parking lanes added.

• **Backed by statute**—Grandview Heights, Ohio, has threatened neighboring Columbus with litigation unless its residents receive an adjustment in rates on water received from the larger city. New rates for Columbus residents have been set at $1.75 per 1,000 cu ft. According to state law, extensions of service to neighboring towns is done at a rate not to exceed one tenth that of city residents. According to this, Grandview Heights consumers, now being charged $2.25 should be able to buy their water at a rate of $1.93 per 1,000 cubic feet.


Residence Hall!
Bridge!
—Cub River Bridge, Lewiston, Utah
—1000 Lake Shore Drive Bldg., Chicago
—Men's Residence Hall, University of Wash., Seattle
—Donald M. Sharp Memorial Community Hospital, San Diego
Hospital!
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One contractor uses it for super-smooth ceilings. Another finds these dense, all wood formboards cutting stoning time as much as 50%. A third likes it because it gives him many re-uses. And a fourth appreciates the better paint job it makes possible.

Consider this about Masonite Concrete Form Presdwood:

- **Less than ½ the cost of other smooth-surface materials**
- **Won't split, splinter or crack**
- **Can be curved for arches, columns, etc.**
- **Easily worked with ordinary carpentry tools**
- **Large 4′ x 8′ and 4′ x 12′ panels. Fewer fins.**

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Chicago's Monroe Building Experience is but another example of the perfected performance built into Yeomans pumps. An outstanding feature of today's Yeomans Vertical Wet Pit Centrifugal Pumps is the *Lubri-Vac* ® *Lubricating System* which consists of impeller with special repelling vanes and lubrication lines to bearing and lubricant. This design has been proved in laboratory tests and field installations to reduce bearing failures and servicing between 90 and 95 percent. It eliminates scoring of radial bearing by providing positive lubrication. In addition, the vanes serve as scavengers for material that might lodge between impeller and pump casing.

Further information on both solids-free liquid and solids-bearing models are given in Pre-Filed Catalogs. For details call your local Yeomans Representative listed in the Yellow Pages of your Telephone book under "Pumps" or fill in coupon and attach to company letterhead.

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INTERNATIONAL

Yukon hydro license granted; MacKenzie River Valley mining and oil expanding

Announcement that a priority permit has been granted for hydroelectric development of the Yukon River (ENR August 5, p. 17; June 10, 1954 p. 25) has focused attention on the potentialities of the neighboring MacKenzie River Valley in the Northwest Territories. Aside from forthcoming construction of radar defense lines and airfields, the valley of the MacKenzie is being worked for uranium, radium, gold and oil.

A major step in the exploitation of Canada's northern lands was taken when permit for the Yukon hydro development was granted by the Northern Affairs Minister to Northwest Power Industries Ltd., owned jointly by Reynolds Metal Co. of New York, and Ventures Ltd. of Toronto. Granting of a similar permit by British Columbia some time ago for the part of the watershed within that province gives the company a green light to start on the project.

Although Ventures Ltd. will concentrate on the refining of other metals, the Reynolds Co. intends to set up aluminum refining facilities which should rival Kitimat in size. Within the next eight years $270 million is to be spent on construction as a start for the project. Whitehorse, Yukon, is the focal point of the hydro project with metal plants to be located on the Taku River, with access through the Alaskan panhandle.

A recent inspection tour of the MacKenzie River Valley by Northern Affairs Minister Jean Lesage, spotlighted the potential of this little known region, which extends from Edmonton, Alberta, to Aklavik, in the river's delta on the Arctic coast. The MacKenzie is the twelfth longest river in the world. It is the seventh largest in flow, being exceeded in the Western Hemisphere only by the Amazon and the Mississippi. Pouring into the Arctic Ocean at a rate of 450,000 cfs the MacKenzie is 50% larger than the St. Lawrence.

MACKENZIE RIVER VALLEY, takes in Great Bear, Great Slave Lakes.

• **Uranium**—Among the prime factors hastening MacKenzie River Valley developments has been the discovery of large uranium deposits at Beaverlodge on the north shore of Lake Athabaska. One large uranium mine is operating, another is being opened up, and a town of a thousand people has sprung up in two years on a townsite specially planned and developed by the Saskatchewan Department of Natural Resources. Access to Beaverlodge is by air from Edmonton or Prince Albert, and by barge from the railhead at Waterways.

On Great Slave Lake, gold mining operations have made Yellowknife a thriving little town. It is administration headquarters for a great deal of mining in the Northwest Territories. Access to the town is by air, from Edmonton, with heavy freight coming in by water—either from the railhead at Waterways with a portage at Fort Smith, or directly from the Hay River. A road has been built from Grimshaw, Alberta, to the Hay River, and it now carries substantial truck traffic from Edmonton.

The Canadian Government is now considering construction of a 300-mile railway from Grimshaw to the Hay River. Such a route not only would give direct access to Yellowknife by water without any portage but to all points along the MacKenzie River as far as the Arctic Ocean. In view of recent announcements of construction of radar defense lines in the north of Canada, this route may soon have even more increased importance.

• **Oil and radium**—On Great Bear Lake, the radium mine at Port Radium continues a large-scale operation, and at the junction of the Great Bear River and the MacKenzie, Im-

perial Oil has a small refinery and a number of wells at Norman Wells. The refinery supplies oil and gasoline for points up and down the river which can be reached without portages. Other companies are exploring the surrounding area for further oil sources.

Access to these points is by air and by water up the MacKenzie and the Great Bear River to the lake. Crossing Great Bear Lake to Port Radium is a fairly lengthy trip as it covers an area larger than that of Lake Erie.

The most northern airport in the MacKenzie River valley is at Norman Wells and a commercial airline provides regular weekly service throughout the year.

Aklavik is the final settlement on the MacKenzie and is located half way down the sprawling 160-mi long delta of the river. Aklavik is the seat of the administrator for the whole of this part of the Canadian Arctic. Located on one of the many channels into which the MacKenzie divides in the delta, the town is only a few feet above river level.

All ground in this part of Canada is frozen to very great depths and the melting of the permafrost in summer has posed many problems in construction and the installation of services. A more suitable site for Aklavik has been under study all this summer by a government survey team. A tentative site has been chosen, and if it measures up to expectations, an airport may be built there in conjunction with the new town.

The new site is on the east side of the delta about 50 miles east of the present location. The delta is a maze of winding channels, small lakes, and low banks of frozen silt. Three-fourths of the whole area is under water.

Four-story Milan garage to be built underground

A 450-car garage – reportedly the most up-to-date one in Europe – is scheduled to be built four floors deep under one of Milan's city squares, the Piazza Diaz. The underground building, some 30,000 cu meters, will occupy an area equal to that of the entire square.

A system of elevators, introduced for the first time in Europe, will move both vertically and horizontally. They will convey cars to the central hall, located 13 ft below street level, and then place them in stalls. Storage and removal potential is estimated at 120 cars per hour.

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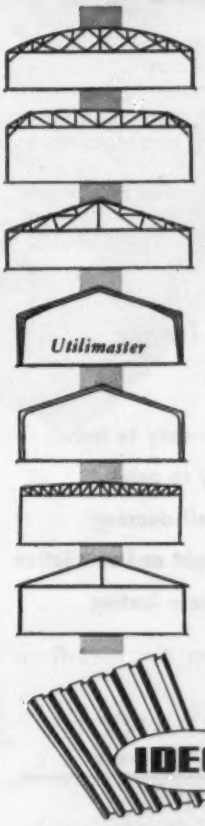

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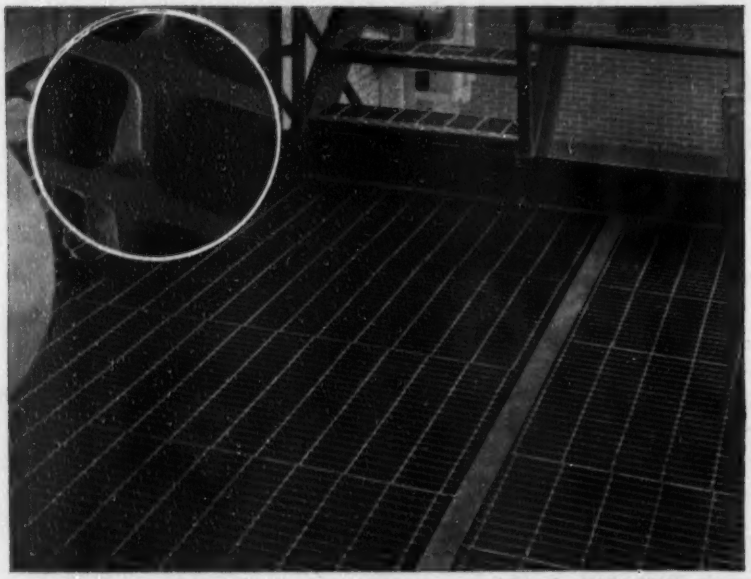

Grating by BLAW-KNOX

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But how about grating for fan guards and shelving—for covering open pits and light wells? And how about other uses throughout your plant that no one has thought of—as steel grating is adaptable to many uses.

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BLAW-KNOX EQUIPMENT DIVISION
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GRATING APPLICATIONS: floors • platforms • walkways • catwalks • stair treads • fan guards • shelving • and many other uses, both outdoors and indoors, for versatile steel grating.

OBITUARIES

John P. Badenhausen, 79, of Philadelphia, retired civil and mechanical engineer, died August 21. A designer and builder of power plants and steam boilers, he founded his own boiler company prior to World War I. He later was associated with Day & Zimmerman, Inc., and then in 1946 founded the firm of Badenhausen-Wyncote.

Joseph W. Terteling, 59, partner in the Boise, Idaho, office of J. A. Terteling & Sons construction firm, died August 15 in Honolulu. He helped his father form the firm in Moscow, Idaho, in 1923.

E. C. Hardesty, 64, superintendent of construction for the western division of Kentucky Utilities Co., died in Earlington, Ky., August 20. He had been associated with the company for 40 years.

Hubert W. Flaherty, 68, former superintendent of streets for Adams, Mass., died August 16 in Geneva City, N. Y. He received his civil engineer's degree from Massachusetts Institute of Technology, and for several years was a partner in a Geneva City contracting firm.

James H. Hopkins, 52, head of James H. Hopkins & Co., Alliance, O., consulting engineering firm, died August 16. A 1927 graduate of Massachusetts Institute of Technology, he formerly served as sales manager of Salem Engineering Co.

Hampar B. Hamparian, 52, a consultant civil engineer, died September 3 in Scranton, Pa.

Theodore W. Artelt, 50, Ithan, Pa., contractor, died August 28 in Philadelphia. He was a partner in the construction firm of Harry C. Erb, Inc.

George W. Scutt, 60, a consulting engineer with Eastern Engineering Co., Reading, Pa., died August 28.

Gustave H. Deuchler, 68, city engineer of Aurora, Ill., since 1936, died July 20. A graduate of the University of Illinois, he founded Engineering Service Co. and acted as consultant to cities in the Chicago area.

William H. Plunkett, who retired recently after 40 years service as a civil engineer for the New York State Highway Department, died August 26 in Syracuse, N. Y.

EASY ALIGNMENT!

Pipe deflections—resulting from varying flange thicknesses and restricted bolt play—presented no problem to engineers designing Cleveland's 22 million dollar Nottingham Filtration Plant. In joining cone valves to a 36″ wash water line, for example, they specified Dresser Couplings which permit up to 3° deflection, yet maintain watertight joints.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Me., Brunswick**—HANGAR—BA 10/19—First Naval Dist., 495 Summer St., Boston, Mass., aircraft maintenance hangar, Naval Air Station. NOY 79821, Spec. 38332. $2,400,000. Plans deposit $80. W. Chester Browne & Assoc., 184 Boylston St., Boston, Mass., archts. CD 10/30/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta,
Lee Bros., Albion, Me. LB **$273,628.** grading, base 5.848 mi. Sect. 2, F.A. Proj. F 046-1 (3), "46" Waite, Talmadge and Topsfield. Bids Sept. 8.
MAINE—State Hy. Comn., State House, Augusta,
Thomas DiCenzo, Calais, Me. CA **$465,726.** grading, base 11.528 mi. Sects. 1 and 2, F.A. Proj. F 046-1 (3) "46", Indian Twp., Waite, Talmadge and Topsfield. Bids Sept. 8.
NEW HAMPSHIRE—State Dpt. P. Wks. & Hys., State House Annex, Concord,
Lambert Constr. Co., Inc., Hartland Rd., White River Junction, Vt., CA **$549,453,** est. $550,000, constr. approx. 2.793 mi. Road Mix. Hy. Rt. No. 9, Chesterfield, Westmoreland and Keene. Bids Sept. 2. CD 9/9, under LB.
† **S. & A. Allen Constr. Co.,** 9 Newbury St., Boston, Mass. CA **$503,808.** Lot A;
John Bowen Co., 173 Boston St., Dorchester, Mass. CA **$513,268.** Lot B, constr. special AAA facilities (4 sites), Quincy, Randolph and Needham, MASSACHUSETTS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 8/25, under LB.
▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
C. J. Maney Co., Inc., 173 Bedford St., Lexington, Mass. CA **$4,239,921,** est. $3,000,000. railroad grade crossing elimination Winchester Square, Winchester. CD 8/13, under LB.
John Capobianca, 101 Tremont St., Boston, Mass. LB **$633,411.**
Beacon Constr. Co., 102 Hano St., Allston, Mass. LB **$709,306** (informal bid), est. $785,000. water treatment plant, BILLERICA, MASS. Town, Bd. P. Wks., Town Hall, Billerica, Mass. Bids Sept. 2. CD 8/5.
▲ **V. Barletta Co.,** 10 Whipple Ave., Roslindale, Mass. LB **$1,256,390,** est. $1,000,000. Contr. 220 Sect. 133B, Framingham Trunk Interceptor from Sudbury Aqueduct Westerly to Natick Pumping Station, Natick, BOSTON, MASS., Commonwealth of Mass., Metropolitan Dist. Comn., Sewer Div., 20 Somerset St., Boston, Mass. Bids Sept. 9. CD 8/25.

BUILDINGS

LOW BIDS AND CONTRACTS

Granger Constr. Co., Inc., 306 Main St., Worcester, Mass. LB **$844,616,** est. $800,000. Junior-Senior High SCHOOL, Concord St. next to Elm School, ASHLAND, MASS. Town, A. C. Cook, supt. schools, Concord St., Ashland, Mass. Bids Sept. 9. CD 8/17.
Brick & Concrete Constr. Corp., 11 Hobson St., Brighton, Mass. CA **$539,610.** elementary SCHOOL, Central St., FOXBORO, MASS. Town, Bldg. Comn., c/o Supt. Schools, Liberty St., Foxboro, Mass. CD 9/3, under LB.
▲ **Town, School Bldg. Comn.,** Hopkinton, Mass. rejected bids Aug. 25, Junior Senior High School, HOPKINTON, MASS. LB **$1,293,000.** Will re-advertise. CD 8/31, under LB.
▲ **Jefferson Constr. Co.,** 75 First St., Cambridge, Mass. LB **$2,647,000,** est. $3,025,000. E-409 Contr. 1, Westfield State Teachers' COLLEGE, Upper Western Ave., WESTFIELD, MASS. State, Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Sept. 10. CD 8/17.
Bartlett-Brainard Co., 103 Woodbine St., West Hartford, Conn. CA Approx. **$600,000.** DAIRY addn., HARTFORD, CONN. Bryan & Chapman Co., 250 Homestead St., Hartford, Conn. Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, Conn., archts.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. Y., Brooklyn—STATION CONSTR.—BA 10/1—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, constr. at West 8th St. station and constr. overpass to Aquarium at Coney Island.

BIDS ASKED—BUILDINGS

▲ **Pa., Pittsburgh**—GARAGES—BA 9/30—Pittsburgh Public Parking Auth., 1208 Ross St., 7 story, 120 x 220 ft., steel, rein.-con. parking garage and stores, Blvd. of Allies, Third Ave., Smithfield St., $2,500,000; CD 12/23/52; 7 story, 220x220 ft. rein.-con. parking garage and stores, Smithfield St., 4th Ave., Diamond Sts., $3,500,000, CD 7/22/54. Plans deposit $50 each. Hoffman & Crumpton, Century Bldg., archts.
N. Y., New York—BUILDING IMPRVS.—BA 10/13—At office Chief Engr. of The Port of New York Auth., 111 8th Ave., New York, Zone 11, alterations on 13th and 14th floors of Port Authority Bldg., 111 8th Ave. Contr. EXD-130.011. Plans deposit $50. CD 1/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲**Cayuga Foundation Corp.,** 30 Vesey St., New York, N. Y. CA **$1,728,420.** Contr. LT-160.013, altering New Jersey Plaza, Lincoln Tunnel Third Tube, NEW YORK-NEW JERSEY. The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Sept. 3. CD 8/26.
R & S Construction Co., 1341 Garrison Ave., New York, N. Y., CA **$681,170,** recreation center, north of Prospect Pl. between Troy and Schnectady Aves., St. John's Park, Contr. BG-11700-249, BROOKLYN, N. Y. Comr. Parks, Office of Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York 21, N. Y. Bids Aug. 11. CD 8/12, under LB.
▲ **Kent-Brown-Furtsch, Inc.,** 384 E. 149 St., New York, N. Y., CA **$5,297,000,** general constr. and foundations;
Wachtel Plumbing Co., Inc., 1345 Cromwell Ave., New York 52, N. Y., CA, **$615,000,** plumbing for Baruch HOUSES, Proj. No. NY-5-12, Sect. II, incl. Bldgs. Nos. 6, 8, 9, 10, 11 and 16 and handball court area in area bounded generally by E. Houston St., Baruch Pl., Stanton and Columbia Sts. and by northeasterly portion of area bounded generally by Stanton, Mangin, Rivington Sts., and Baruch Pl. and by northerly portion of area bounded generally by Stanton St., Baruch Pl., Rivington St. and Lewis St. and by area bounded generally by Stanton St., Lewis St., Rivington St. and Cannon St. and by area bounded generally by Rivington St., Baruch Pl., Delancey St., Lewis St., etc. Manhattan Boro, NEW YORK, N. Y. New York City Housing Auth., 63 Park Row, New York 38, N. Y. Bids June 8. CD 6/10, under LB.
† **F. D. Rich Co., Inc.,** 322 Main St., Stamford, Conn. CA **$518,120,** gage storage and design bldg., Watervliet Arsenal, WATERVLIET, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Aug. 10. CD 8/13, under LB.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

▲ **NEW JERSEY and PENNSYLVANIA**—Delaware River Port Authority, Admin. Bldg., Camden, N. J.
Bethlehem Steel Co., Bethlehem, Pa., LB **$6,977,681.** Contract P-3, viaduct superstructure, Phila. Anchorage to 2nd St. for bridge between Packer Ave., Phila., Pa. and Gloucester, N. J. Bids Sept. 9. CD 8/9.
PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Herbert R. Imbt, Inc., P.O. Box 155, State College, Pa. CA **$762,001,** constr. 2.14 mi. c. conc. pavement, 33 to 44 ft. wide; wid'n. existing pavement with plain concrete base and surf. new base and existing pavement with bit., one concrete encased I-beam bridge under Reading R.R. and extending two existing structures, one I-beam over Sechler Run from Danville Boro east, U. S. Rte. 11, in Danville Boro, Mahoning Twp., Montour Co. Bids Aug. 27. CD 9/1, under LB.
Diulus Constr. Co., 4610 Barland Dr., Pittsburgh, Pa. CA Approx. **$607,700,** steam distr. sys. and electrical distr., MAYVIEW, PA. Mayview State Hospital, Mayview, and General State Auth., 18 and Herr Sts., Harrisburg, Pa. Swindell Dressler Corp., Aspinwall, Pa., engrs.
MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Keeley Constr. Co., Clarksburg, Va. LB, **$593,326.** wid'n. resurf. 2.44 mi. U. S. Rte. 219 Deep Creek Bridge to Glendale, Contr. G 271-3-620, Garrett Co. Bids Sept. 7. CD 8/24.
▲ **Kenny Constr. Co.,** 3220 Oakton St., Skokie, Ill., CA, **$2,343,974,** grading, drainage, structures, paving and trunk sewer, 35 St. to Stoddard Pl. on E. Capitol St. Exten. WASH., D. C. Director of Hys., Govt. of D. C., 499 Pennsylvania Ave. N.W., Wash., D. C. Bids Aug. 11, awarded Sept. 9. CD 8/13, under LB.
DELAWARE—State Hy. Dpt., Dover,
James Julian, Inc., Elsmere, Del., LB, **$943,709.** Basin Corner Interchange & Intersection of U. S. Route 14 and Delaware State Route 41, F.A. Proj. FI-1-44 (10), Contract 1316 (2), New Castle Co. Bids Sept. 8. CD 8/23.

BUILDINGS

LOW BIDS AND CONTRACTS

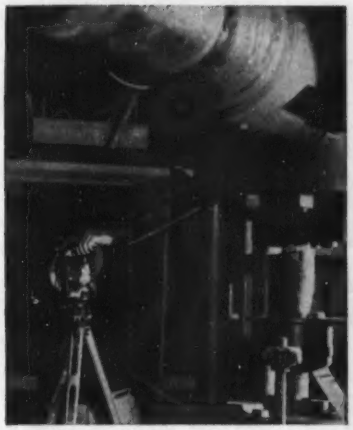
▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y., CA **$1,294,000.** PUBLIC SCHOOL 26, BROOKLYN, N. Y. Bureau Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids July 15. CD 8/3, under LB.
▲ **Met Contg. Corp.,** 50 Court St., Brooklyn 2, N. Y. CA **$1,048,000.** Junior HIGH SCHOOL 127, Raymond Ave. between Purdy St. and Castle Hill Ave. Bronx Boro, NEW YORK, N. Y. Bureau of Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids July 13. CD 8/3, under LB.
Barbara Estates Homes, c/o Arthur Williamson & Co., 484 Route 17, Paramus, N. J. Owner Builds. **$500,000.** 31 HOUSES on tract on Park Ave. near Prospect Ave. WYCKOFF-MIDLAND PARK, N. J.
The Trimble Co., 1719 Penna Ave., Pittsburgh, Pa., CA Approx. **$500,000.** 1 and 2 story, 160x92x86 ft., 1 story, 60x90 ft., LABORATORY-OFFICE-FUEL BLENDING; BOILER HOUSE addn., HARMARVILLE, PA. Gulf Oil Research & Development Corp., Harmarville, Pa. Bids Aug. 30. CD 8/19.
▲ **Leon A. Katz-Patrick F. O'Callaghan Enterprises,** 122 E. 42 St., New York 17, N. Y. Own Forces. **$41,000,000.** SHOPPING CENTER, 158-acre tract at juncture of Rte. 1, the Lincoln Hy. and Rte. 413 to include 185 shops, showrooms and offices, two department store bldgs. and parking for 7,900 cars, Penndel, LEVITTOWN, PA. CD 9/10.
Kirby & McGuire, 2518 Greenmount Ave., Baltimore, Md. CA, **$849,263.** masonry, steel, concrete HOSPITAL, guard house, truck gates, Maryland Penitentiary, BALTIMORE, MD. State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Md. CD 8/18, under LB.
Orville Constr. Co., c/o owner. CA, **$862,500.** one hundred and fifteen 1 story, brick HOUSES, Middlesex Rd., near ESSEX, MD. Victor Posner Developments, 514 St. Paul St., Baltimore, Md.
▲† **John Volpe Constr. Co.,** 1507 M St. N.W., Wash., D. C., CA, **$932,845,** base bid, incl. Alternates A and B. LAW SCHOOL, Howard University, WASH, D. C. General Services Admin., P. Bldgs. Serv., Regional Office Bldg., 7 and D Sts. S.W., Wash., D. C. Bids Aug. 12, awarded Sept. 9. CD 8/16, under LB.

SOUTH

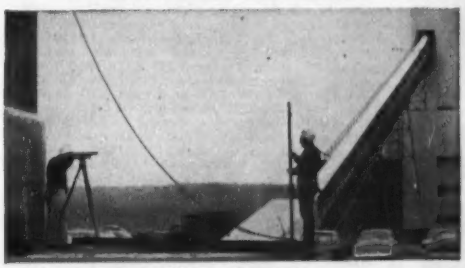
BIDS ASKED—HEAVY CONSTRUCTION

Va., Alexandria—BA 9/30—Sanitation Auth., 113 N. St. Asaph St., Div. V, heating and ventilating work, furnishing, installing boilers, convectors, unit heaters, air-conditioning equip., piping and appurtenances for constr. sewage treatment plant. Plans deposit $25. Greeley & Hansen, 220 S. State St., Chicago 4, Ill., engrs.; adv. ENR 9/16. CD 1/12/53.
† **Fla., Tampa**—ADDITIONAL CONSTRUCTION—BA On Or About 10/20—U. S. Eng., P.O. Box 4970, Jack-

(Continued on page 58)



CHECKING ALIGNMENT of the turbine throttle valve with Berger 6" Transit; grade set with Berger Level. Tolerances 1/32" in any direction.



ESTABLISHING GRADES for setting reclaim hopper with Berger Level.

CHECKING TURBINE GENERATOR to elevation within ±1/32" with a Berger Level.

From project base line to complete power plant installation...

Berger Instruments point the way for Stone & Webster engineers

"In laying out a power plant like this for The Hartford Electric Light Company, 1/32" is a critical dimension – whether you're establishing the initial project base line or aligning the turbine throttle valve – because all buildings and equipment must be accurately integrated into one operating unit," say the field engineers at Stone & Webster Engineering Corporation.

Berger Transits and Levels were used exclusively on this job – to meet these requirements:

All building base plates set for line and grade within a tolerance of 1/32".

Anchor bolts for coal handling equipment set to 1/16" to assure perfect fit in field erection of prefabricated sections.

Alignment and elevation of main and auxiliary steam lines set under strain within 1/16" in order that they will assume their proper position after expansion takes place when lines become operative at a temperature of 950° F. Deviation from dead level held within ±1/32".

Center lines for all equipment — piping, generators, boiler feed pumps, pulverizers, condensers, etc. — must be accurately related to one set of base lines.

Rails for 120-ton overhead bridge crane 97'6" apart must be truly parallel within 1/16" and set accurately at required distance.

Berger Instruments were on the job here, as they are on so many other Stone & Webster projects. For when the "specs" call for really close-tolerance construction, leading engineers and construction men buy Berger . . . Take one into the field and see why. *Count on quick delivery—thanks to enlarged capacity.*

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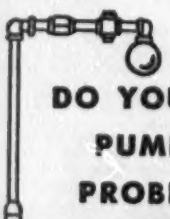

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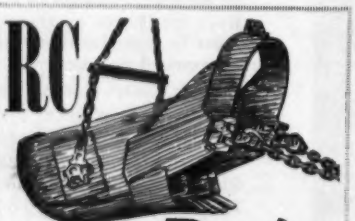

GENERAL PURPOSE

Page

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	24"	16.00	14.50
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¾"x1¾"–	12"	6.15	5.60
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	18"	7.50	6.50
	24"	11.00	10.00
	30"	16.00	14.00

Prices net F.O.B. Cumberland, Md.

BUCHANAN LUMBER CO.

CUMBERLAND, MD.

(Continued from page 56)

sonville, addnl. construction M-site, MacDill Air Force Base. Serial No. ENG-98-123-55-19.

BIDS ASKED—BUILDINGS

Fla., Gainesville—AGRICULTURE—BA 10/12—Florida State Bd. Control, Education Bldg., Florida State State University, Tallahassee, Unit 2, main agriculture bldg., University of Florida. $500,000.

▲ Ga., La Grange—SCHOOLS—BA 10/19—Troup Co. Bd. Educ., La Grange, schools. $1,000,000.

SOON LETS CONTRACT—BUILDINGS

▲ Tenn., Knoxville—STORE—Rich's, Inc., Forsyth St., Atlanta, Ga., soon lets contract, department store. $7,200,000. Stevens & Wilkinson, 157 Luckie St., N.W., Atlanta, Ga., archts. CD 9/8.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, N. C. CA **$2,530,065.** bridge over Croatan Sound, U. S. 64 between Mann's Harbor and Manteo, Hy. Proj. 1231, Dare Co. Bids Sept. 7, awarded Sept. 9. CD 9/13, under LB.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

J. C. Critcher, Inc., Box 39, Asheville, N. C., LB **$219,564**, est. $300,000-$400,000, grading 11.9 mi. US 301 (reloc.), Proj. 2335, Johnston Co.;

Barrus Constr. Co., Box 395, Kinston, N. C., LB **$187,570**, est. $200,000-$225,000, grading, CABC, bit. surf. tr. 11.26 mi. NC 12, Proj. 2451, S-756 (1), Jones Co.; LB **$173,518**, est. $175,000-$200,000. STBC, sand asph. base, b. conc. surf. 12.26 mi. US 70, Proj. BS 2-6-20-116, Code 5900-225, Lenoir Co.;

Dickerson, Inc., Box 448, Monroe, N. C., LB **$98,296**, est. $75,000-$100,000. sand asph. base and surf. 10.45 mi., Proj. 2-658, S-533 (2), BS 1-7-14-7. BS 1-7-14-6. Washington Co.; LB **$83,944**, est. $75,000-$100,000, sand asph. or b. conc. surf. 24.2 mi. Proj. No. 1-9-8-221, Halifax Co.;

Propst Constr. Co., Box 752, Concord, N. C., LB **$740,593**, est. $400,000-$500,000, SABC and bit. surf. tr. 20.47 mi. US 70 (reloc.), Proj. 5408, F.I. 644 (10), U-676 (7), Alamance and Guilford Counties;

H. F. Ramsey Co., Box 5146 Biltmore Station, Asheville, N. C., LB **$182,511**, est. $250,000-$300,000, grading 5.3 mi. US 29 (reloc.), Proj. 5926, S-745 (1), BS 7-6-51-199, Rockingham Co.;

Macon Constr. Co., Franklin, N. C., LB **$108,239**, est. $150,000-$175,000, grading 4.04 mi. NC 150 (reloc.), Proj. 6484, F-693 (2), Lincoln Co.;

Ray D. Lowder, Albemarle, N. C., LB **$133,927**, est. $150,000-$175,000, grading, CABC, Bit. surf. tr. 6.51 mi. Proj. 7-358, S-644 (1), S-645 (1), Rowan Co.; LB **$60,726**, est. $50,000-$75,000, grading and structures 5.56 mi. Proj. 6-413, S-605 (1), Randolph Co.;

A. R. Thompson Contr., Inc., Rutherfordton, N. C., LB **$126,827**, est. $150,000-$175,000, grading, CABC, bit. surf. tr., 6.02 mi., Proj. 9-554, S-646 (1), Rutherford Co.;

Taylor Constr. Co., Box 5220, Biltmore Station, Asheville, N. C., LB **$323,519**. est. $300,000-$400,000, grading, CABC, bit. surf. tr. 11.68 mi., Proj. 0-501, F. H. 35-A, Macon Co.;

F. D. Cline Paving Co., Box 349, Raleigh, N. C., LB **$105,214**, est. $100,000-$175,000, sand asph. or b. conc. surf. 31.8 mi., Proj. 1-9-6-222. 1-9-6-223, Edgecombe Co.; LB **$77,198**, est. $75,000-$100,000, sand asph. or b. conc. base and surf. 13.05 mi. NC 44, 48, 43, 581 and 561, Proj. No. BS 4-7-29-26, BS 4-6-32-149, Code 5900-423, Code 5900-445, Edgecombe and Nash Counties; LB **$104,126**, est. $100,000-$125,000, sand asph. base, and b. conc. binder and surf. 15.7 mi. US 15-A and NC 102 Proj. BS 6-6-44-160, BS 6-6-44-161, Cumberland Co.;

Johnson & Geddes, Box 3217, Fayetteville, N. C., LB **$59,108**, est. $50,000-$75,000, grading, STBC, bit. surf. tr. or sand asph. or b. conc. surf. 6.23 mi. Proj. 3-303, S-758 (1). Duplin and Sampson Counties. Bids Sept. 7. CD 8/30.

▲† **McKoy-Helgerson Co.**, 320 S. Hudson St., Greenville, S. C., CA, **$1,183,650**, roads and utilities, Homestead Air Force Base, INV. 55-5, HOMESTEAD, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Aug. 31. CD 9/10, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

W. M. Hooper, Caneyville, Ky. CA **$660,581.** Kentucky Turnpike Proj. No. 1 Contr. 6-A, consists constr. 1 five span built-up steel girder bridge with rein.-con. bents and abutments. The substructure units are supported on steel H-beam piles, location at approx. Turnpike Centerline Sta. 1397 plus 00;

The Penker Constr. Co., 1030 Summer St., Cincinnati, O. CA **$729,878.** Contr. 6-B consists constr. 7 four span and 1 five span continuous rein.-con. T-beam type structures with rein.-con. bents and abutments, substructure units of all bridges will be supported by steel H-beam piles, precast concrete piles cast-in place concrete piles or spread footings on rock following stations denote approx. locations of each bridge C-2 1427 plus 00, C-3 1540 plus 00, C-4 1677 plus 46, C-5 1790 plus 55, C-6 1882 plus 15, C-7 195 plus 15, C-8 2019 plus 00, C-9 2042 plus 92. CD 9/ under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

E. A. Scott & Sons, Americus, Ga., CA, **$597,000.** SCHOOLS, JACKSON, GA. Butts Co. Bd. Educ., Jackson, Ga. Bids Sept. 2. CD 9/10, under LB.

R. P. Henderson & Son, Pell City, Ala., LB, **$559,640,** branch COURT HOUSE, PELL CITY, ALA. St. Clair Co. Comn., Ashville, Ala. Bids Sept. 8. CD 8/27.

▲ **The Austin Co.**, 16112 Euclid Ave., Cleveland, O. CA $1,500,000. rein.-con slab, masonry, approx. 100,000 sq. ft. MANUFACTURING and OFFICE BLDG., BOWLING GREEN, KY. Detrex Corp., 14331 Woodrow Wilson Blvd., Detroit, Mich. CD 8/12.

MIDDLE WEST

BIDS ASKED—BUILDINGS

† **Ind., Fort Benjamin Harrison**—SCHOOL, etc.—BA 10/5—U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill., combined adjutant general's school, finance school and related work, Serial No. ENG-11-032-55-4. CD 6/5/52.

SOON LETS CONTRACT—BUILDINGS

▲ **Wis., Racine**—SHOPPING CENTER—Durando, Inc., 306 5 St., soon lets contract, 1 story, bsmnt., 3 sections, 160,000 sq. ft. shopping center, $3,000,000. L. Momberg & Assocs., 815 57 St., Kenosha, Wis., archts. CD 3/3/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Howe Constr. Co.**, 215 Munroe Falls Ave., Cuyahoga Falls, O., CA $1,828,742, Contr. 18A, general constr. sewage treatment plant, AKRON, O. City, Dir. P. Service, Municipal Bldg., Akron, O. Bids July 29. CD 7/1.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis,
Suber & Co., Inc., P.O. Box 338, Whitmire, S. C. LB $7,432,138. Contracts 51, 52 and 53, Indiana East-West Toll Road, Steuben Co. Bids Sept. 8. CD 8/19.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis, Zone 4,
Rieth-Riley Constr. Co., Goshen, Ind., CA, $3,365,878, imprv. Contracts 24 and 25, 7 4/10 mi. St. Joseph Co. Bids Sept. 1, awarded Sept. 10. CD 9/3, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

I. Bush & Sons, 4204 S. Brook St., Louisville, Ky., CA, $709,334, two SCHOOLS, SEYMOUR, IND. School City, Bd. Educ., Seymour, Ind. Bids Sept. 2. CD 8/30.

Kay & Ess, 3559 W. Irving Park Rd., Chicago, Ill., CA, $550,000, SCHOOL, 4330 S. Fairfield St., CHICAGO, ILL. Immaculate Conception Parish, 2745 W. 44 St., Chicago, Ill. Belli & Belli, 8 S. Dearborn St., Chicago 3, Ill., archts. Awarded Aug. 30.

W. E. O'Neil Constr. Co., 2751 N. Clybourn St., Chicago, Ill., LB, $893,500, general contract INDOOR PRACTICE BLDG., MADISON, WIS. University of Wisconsin, Madison, Wis. Bids Sept. 1. CD 8/17.

Jacob C. Basten Constr. Co., 1329 Main St., Green Bay, Wis., CA, $807,855. SEMINARY, ONEIDA, WIS. Sacred Heart Seminary, Oneida, Wis. Bids Aug. 24. CD 9/9, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Tex., Sweetwater**—AC&W STATION—BA 9/30—U. S. Eng., 100 W. Vickery St., Fort Worth, AC&W station, M-89. Inv. No. ENG-41-443-55-9.

† **North Dakota**—BA 10/6—U. S. Eng., Rand-McNally Bldg., 536 S. Clark St., Chicago 15, Ill., channel imprv. of Rush River, approx. 28 mi. channel clearing and snagging in 8 separate reaches, CIVENG-21-018-55-17. CD 9/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IOWA—State Hy. Comn., Ames,
Fred Carlson Co., Decorah, Ia., CA, $531,640. paving 8.164 mi. F-799 (7), Poweshiek Co. Bids Aug. 24. CD 8/30, under LB.

▲† **H. B. Zachry Co.**, P.O. Box 2570, San Antonio 6, Tex. LB $2,730,609, est. $2,793,520, aircraft parking apron, maintenance hangar apron and ditch closure at Abilene Air Force Base, ENG-41-443-55-11, ABILENE, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Sept. 9. CD 8/17.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver,
Henry Shore Constr. Co., 510 South Windimere St., Littleton, Colo., CA, $710,432, est. $813,330. imprv. 5.459 mi. Colo. Proj. I FI 002-2 (28) Unit 1 and FI 002-2 (20) Unit 1, Douglas Co. Bids Sept. 8. CD 8/31.

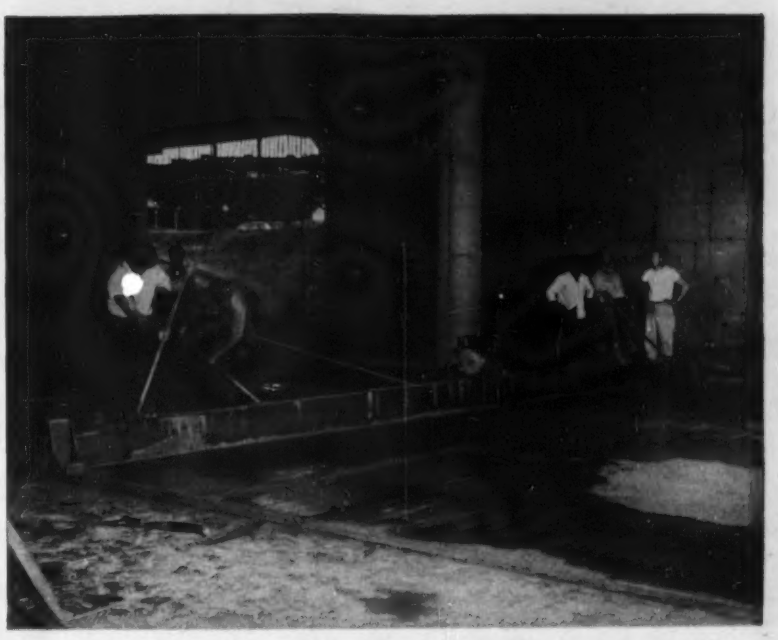
BUILDINGS

LOW BIDS AND CONTRACTS

Ross & Son Constr. Co., Brownwood, Tex., CA $592,400. general constr. 3 story brick, tile, concrete, steel womens DORMITORY, BROWNWOOD, TEX. Howard-Payne College, Brownwood, Tex. Bids Sept. 2. CD 9/8 under LB.

James T. Taylor & Son, P.O. Box 255, Fort Worth, Tex., LB $646,512, general constr.;
Bird Plumbing & Heating Co., 611 Riverside St., Fort Worth, Tex., LB $126,660, refrigeration for constr. concrete, steel refrigerated WAREHOUSE, N.E. 23 St., FORT WORTH, TEX. U. S. Cold Storage Corp., 500 E. 3 St., Kansas City, Mo. Bids Sept. 8. CD 8/25.

Kings Thrift-O-Mat, Inc., Shepherd and Washington Sts., Houston, Tex., Owner Builds. $500,000. group of self-service RESTAURANT UNITS, HOUSTON, TEX. CD 8/11.



NEW 33′ SCREED CUTS SET-UP TIME IN HALF

Kept 6 ready-mix trucks busy supplying concrete

Most small contractors still pour floors in small sections, striking off the concrete with a two by four. Then they must wait three or four hours before they can use a rotary trowel to finish the job properly. This often involves overtime payment.

A contractor who saw one of STOW'S large screeds in action asked that they make up a 33′ screed for him—with one special feature. He wanted the beam split at the center to make for easier shipment. Tie-rods were used to prevent sag (see photo). No difficulty is encountered in moving the screed because of the efficiency of STOW roller assemblies. Only three men are necessary to operate this screed—one on each end and one in the center with a rope-pull. Use of the long screed eliminated a great deal of form set-up time, since fewer forms were needed.

In this operation, a layer of concrete is first placed to about half the height of the forms. The steel reinforcing is put down and more concrete poured—up to the level of the forms. Then the slab is screeded. If bare spots were left, because the concrete was not quite up to screed level, the screed was simply tilted back on its rollers and rolled back part way for a second pass.

Because of the STOW screed's vibrating action, a stiff, 1" slump mix was used, producing a stronger concrete. And, because the mix was stiff and dry, they were able to put rotary trowels on the floor for an extra-fine finish one hour after screeding.

For complete information on the STOW line of concrete vibrators and screeds, see your STOW Distributor, or write for Bulletin 526, specifying the equipment in which you are interested.

STOW MANUFACTURING CO.

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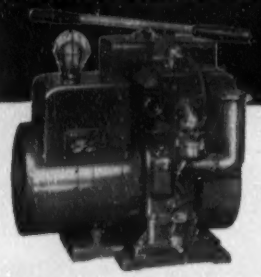
can make the difference



When uninterrupted construction of off high line jobs means the difference between bonus and penalty for speed of construction, you'll need Fairbanks-Morse dependable power generating sets.

Fairbanks-Morse generators are available in capacities from 600-watt portables for surveying and pioneering crews, to 75-kw. sets that supply power for all lights and construction tools. For a completely descriptive catalog, write Fairbanks, Morse & Co., Chicago 5, Ill.

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▲ **Fish Eng. Corp.**, M & M Bldg., Houston, Tex. CA design and construct. Approx. $2,225,000, gasoline REFINERY; CA $1,150,000. gas dehydration PLANT, near RUNGE, TEX. United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, La. CD 3/9/49, under Tex., Karnes City.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Wash., Seattle**—BA 10/20—City, County-City Bldg., Seattle, Zone 4, 150 ft. high concrete dam on Skagit River at Gorge for City Light, $17,000,000. Plans deposit $25. Extended date. P. J. Raver, city light supt. CD 8/26.

BIDS ASKED—BUILDINGS

▲ **Wash., Walla Walla**—KITCHEN, etc.—BA 10/5—State Dpt. P. Institutions, Olympia, 70,000 sq. ft. 2 story, part bsmnt., rein.-con. kitchen and dining hall, State Penitentiary, $1,000,000. Plans deposit $50. J. W. Maloney, Central Bldg., Seattle, Zone 4, archt. CD 7/23.

SOON LETS CONTRACT—BUILDINGS

▲ **Ore., Portland**—SERVICE CENTER—Portland General Electric Co., 610 S.W. Broadway, soon lets contract, service center. $1,100,000. Glenn Stanton, Concord Bldg., archt. Fred G. Hodge, 610 S.W. Broadway, engr. CD 8/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Ukropina, Polich & Kroll**, 201 E. Las Tunas Dr., San Gabriel, Calif., LB, $1,681,098 for Sch. 72P, (108 in. precast concrete pipe); LB $2,588,365 for Sch. 735C (108 in. steel pipe);
ABC Constr. Co., 12420 S. Bloomfield Ave., Norwalk, Calif., LB, $1,498,951 for Sch. 74P (108 in. precast concrete pipe) for pipe line between Corona and San Juan Tunnel for Lower Feeder, LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern Calif., 306 W. 3 St., Los Angeles, Calif. Bids Sept. 9. CD 8/24.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **James I. Barnes Constr. Co.**, 940 Spring St., Redwood City, Calif., LB, $3,560,000, Group 1 Area D, 6 school units, Bakersfield Junior COLLEGE, BAKERSFIELD, CALIF. Kern County High School & Junior College Dist., 312 Bernard St., Bakersfield, Calif. Bids Sept. 3.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Man., Winnipeg—ADMINISTRATION BLDG., etc.—BA 10/6—Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., administration bldg., guard house, 2 chapels, R.C.A.F. Station. $370,000. Plans deposit $100. CD 9/24/52.

SOON LETS CONTRACT—BUILDINGS

▲ **Ont., Brantford**—FACTORY—A. G. Spalding & Brothers of Canada Ltd., 5 Edward St., soon lets contract, factory, Hy. 53. $1,000,000. C. G. MacLean, 234A Lawrence Ave. W., Toronto, archt. CD 5/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Bennett & White (Alberta) Ltd.**, 11239 83 St., Edmonton, Alta., CA, $1,707,700, barrack blocks, officers mess, other bldgs., R.C.A.F. Station, NAMAO, ALTA. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. Bids July 29. CD 7/20.

BUILDINGS

LOW BIDS AND CONTRACTS

Farmer Constr. Ltd., 2925 Douglas St., Victoria, B. C., CA, $799,505, BARRACK BLOCK, Royal Roads, ESQUIMALT, B. C. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. CD 12/1/53.

Foundation Co. of Canada Ltd., 166 Douglas St., Sudbury, Ont., CA, $300,000, mining and concentration PLANT at mine site, ALGOMA MILLS, ONT. Pronto Uranium Mines Ltd., 44 King St. W., Toronto, Ont. Awarded Sept. 7.

Ball Brothers Ltd., 49 King St. E., Kitchener, Ont., CA $800,000, high SCHOOL on outskirts of MIDLAND, ONT. Midland-Penetang District High School Bd., Midland, Ont. Bids Sept. 1, awarded Sept. 7. CD 8/17.

Foundation Co. of Canada Ltd., 1220 Bay St., Toronto, Ont., CA, $600,000, 1 story BANK and OFFICE, Bay and Temperance Sts., TORONTO, ONT. Royal Bank of Canada, 360 St. James St. W., Montreal, Que. Bids Aug. 23. CD 8/17.

▲ **Foundation Co. of Canada Ltd.**, 1220 Bay St., Toronto, Ont., CA, Total est. $5,500,000. superstructure CANCER CLINIC, Wellesley and Sherbourne Sts., TORONTO, ONT. Wellesley Hospital, Toronto General Hospital, 101 College Ave., Toronto, Ont. Bids Aug. 23. CD 8/9.

▲ **Taylor-Woodrow (Canada) Ltd.**, 24 Isabella St., Toronto, Ont., CA, $5,807,500, three 14 story bldgs., incl. 744 APARTMENTS, Yonge, Alexander, Wood and Church Sts., TORONTO, ONT. City Park Apartments Ltd., c/o Hubert Buildings Ltd., 496 Church St., Toronto, Ont. W. V. Zinn & Assocs., Ltd., 102 Eglinton Ave. E., Toronto, Ont., engrs. Bids July 20. CD 7/9.

(Continued on page 62)

"Sheared right at the drill holes ... no back break"

This line drilled shot by Nello L. Teer Co. is another example of the close control that can be obtained with the ROCKMASTER® Blasting System.

This 30 ft. high horseshoe-type bench had to be trimmed to a ¼ to 1 slope for concreting the north portal of the new West Virginia Turnpike tunnel. Precise control of the blast was especially important to the contractor, because any back break would mean expensive extra concrete work.

The diagram above shows the ROCKMASTER pattern that was used. The results in the picture are obvious. The wall sheared just at the line drilled holes and there was no significant back break.

For any job, special or regular, ROCKMASTER can give you the results you want. For complete information on the ROCKMASTER Blasting System, Atlas explosives and blasting accessories, write for your copy of the new Atlas Explosives Catalog.

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(Continued from page 60)

▲ **Foundation Co. of Canada Ltd.**, 1220 Bay St., Toronto, Ont., CA, $4,500,000 Unit A, B, C and D for BLIND INSTITUTE BLDGS. on Divadale Estate, Bayview Ave., TORONTO, ONT. Canadian National Institute for Blind, 186 Beverly St., Toronto, Ont. Bids Aug. 17. CD 8/9.

▲ **Bridge & Tank Co. of Canada Ltd.**, 231 Bay St. N., Hamilton, Ont., CA, $1,000,000. fabrication and erection structural steel for 19 story OFFICE BLDG., St. Clair Ave. W. and Foxbar Rd., TORONTO, ONT. Imperial Oil Co. Ltd., 56 Church St., Toronto, Ont. Awarded Sept. 8. CD 6/18/53.

Begg & Daigle Ltd., 48 Ridgevale Dr., Toronto, Ont., CA, $500,000, five 2 story, bsmnt., 50-unit 50x68 ft., concrete, block, brick, steel APARTMENT BLDGS., TORONTO, ONT. Owner, c/o Town Planning Consultants Ltd., 614 Church St., Toronto, Ont. Awarded Sept. 7.

▲ **Leon M. Adler**, 75 Manseau St., Montreal, Que., CA, $2,275,000, HOUSING program, incl. 182 units on new streets near Cote St. Luc Rd., COTE ST. LUC, QUE. Elite Investments Corp., 1501 St. Catherine St. W., Montreal, Que. C 3/23.

Proposed Projects

WATER SUPPLY

▲ **Ark., Fort Smith**—City, City Hall, voted $1,100,000 bonds for second dam for water supply.

Calif., Monterey Park—City, $899,000 bond election Nov. 2, imprvs. to water system. James M. Montgomery, 15 N. Oakland Ave., Pasadena, consult. engr. CD 10/7.

▲ **Ga., East Point**—City, City Hall, water tank, water mains, etc. $1,100,000. Wiedeman & Singleton, P.O. Box 1878, Atlanta, consult. engrs. CD 8/29/51.

▲ **Kan., Kansas City**—City, Utilities Bd., City Hall, exten. water facilities west of city into proposed annex area. $7,000,000. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., consult. engr. CD 6/14.

▲ **Okla., Ponca City**—City, bond election Oct. 5, water main distr. exten. $495,000; 57 drilled water wells for addni. water supply, $1,180,000. R. D. Alexander, Terminal Bldg., Oklahoma City, consult. engr. CD 7/29.

▲ **Tex., Carthage**—Panola Water Dist., Carthage, voted bonds Aug. 28, constr. Murvaul Lake, 15 mi. long, 1½ mi. wide, at Gary, 12 mi. from here. $1,350,000.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, City Hall, R. C. Harris Water Purification and Pumping Plant extension, Queen St. E. $7,300,000. Gore & Storrie, 1130 Bay St., consult. engrs. CD 2/8.

SEWERS, WASTE DISPOSAL

▲ **Mich., Port Huron**—City, J. F. Gibbs, mgr., storm sewers, trunk sewerage sys. $2,000,000. Allan T. Carlise, city engr.

▲ **N. Y., Henrietta**—Town, sewerage sys. and treatment plant. $1,317,000.

▲ **O., Parma**—Village, Stephen A. Zona, mayor, bond election Nov. 2, sewers, $1,000,000. CD 5/27.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, City Hall, sewage plant expansion Ashbridge's Bay, $10,000,000. Gore & Storrie, 1130 Bay St., consult. engrs. CD 2/8.

BRIDGES

▲ **Mich., Saginaw**—City, C. A. Miller, mgr., Bristol Street Bridge, $2,500,000, The Francis Eng. Co., 301 Eddy Bldg., consult. engr.

STREETS AND ROADS

▲ **N. C., Roanoke Rapids**—City, street imprvs. $1,000,000. CD 2/18/47.

▲ **O., Cincinnati**—Bd. Comrs. Hamilton Co., Court House, bond election Nov. 2, various roads imprvs. $3,000,000.

▲ **Tenn., Nashville**—Nashville Housing Auth., 701 S. 6 St. streets and sewers for Capitol Redevelopment area. $2,000,000. Clarke, Rapuano & Holleran, 145 E. 32nd St., New York, N. Y., consult. engrs.

EARTHWORK, WATERWAYS

▲ **Alabama**—Alabama Power Co., 600 N. 18 St., Birmingham, hydro-electric dam and power plant on Warrior River, New Hope. Over $3,000,000.

† **California**—U. S. Eng., 751 S. Figueroa St., Los Angeles, channel dredging and revetment, San Diego River at entrance to Mission Bay, $750,000. CD 4/21/44.

▲† **New York-Ohio-Michigan-Wisconsin**—U. S. Engrs., Engineer Park, Buffalo 7, N. Y. St. Lawrence Seaway Canal and two locks at Barnhart Sect., $70,000,000; dredging Thousand Islands Sect. $2,000,000; dredging in Detroit River, St. Clair River and Lake St. Mary's River, $100,000,000.

▲ **Ontario-Quebec**—Department Transport, Ottawa, Ont. St. Lawrence Waterway, Lachine Section, $122,500,000; twin locks Soulanges Sect. $47,000,000; dredging Lake Francis, $4,500,000; Iroquois Section canal and lock, $13,800,000, deepening Welland canal, $2,000,000.

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AIRPORTS

▲† **Ariz., Yuma**—DORMITORY, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., airman dormitory 4A, 133-man (6), $800,000; hi-intensity runway lighting No. M-2, $250,000; constr. rehabilitation Bureau of Reclamation facilities, $350,000; rehabilitation water main distr. sys., $150,000; N.C.O. club bldg. No. 1A, $250,000; non-standard (3) squadron operations bldg. $200,000; stabilize shoulder of runway, $200,000; erosion control, $150,000; mobile facilities, SM-162, $500,000, all foregoing at Yuma County Airport. CD 12/11/52.

▲† **Calif., March Air Force Base**—PARKING APRON, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, strengthen heavy operational parking apron $620,000, strengthen heavy primary taxiway $75,000, Porter, Urquhart & Beavin, 3568 W. 3 St., Los Angeles, consult. engrs.; extending primary heavy runway, $962,000; aircraft taxiway access apron, $970,000. heavy operational parking apron, $310,000; extending primary heavy taxiway, $510,000; hi-intensity runway lighting No. 1, $1,105,000; relocate buildings, $170,000. Donald R. Warren, 3109 Wilshire Blvd., Los Angeles, Calif., consult. engr. CD 9/1.

▲† **Ore., Klamath Falls**—AIR BASE—P. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, Wash., extend runway, constr. fuel storage facilities, taxiways, hangars, housing, communications and navigation facilities, utilities, hospital, etc. for Klamath Falls Air Force Base. $4,133,000.

▲† **Tex., Kelly Air Force Base**—AIR FIELD IMPRVS.—U. S. Eng., Box 1229, Galveston, plans by Gullatt, Lodel & Assocs., archts.-consult. engrs., 1411 Transit Tower, San Antonio, air field imprvs. $5,000,000; water sys., $50,000; storm sewage sys., $75,000; sanitary sewerage sys., $75,000; area earthwork, grading, $67,500; road constr., $75,000; natural gas sys., $65,000.

LATIN AMERICA

▲ **Mexico, Piedras Negras**—DWELLINGS—Mexican Federal Govt., c/o P. Wks. Dpt., Mexico City, constr. 1,000 dwellings, $1,250,000.

PUBLIC BUILDINGS

▲ **Calif., Eureka**—OFFICES—Humboldt Co., Court House, $1,900,000 bond election Nov. 2, 2 county administration office bldgs. CD 9/8/44.

▲ **Calif., Santa Ana**—ADMINISTRATION—Orange Co., Court House, $11,000,000 bond election Nov. 2, county administration bldg.

▲ **Calif., Santa Ana**—NURSING SCHOOL, etc.—Orange Co., Court House, $6,000,000 bond election Nov. 2, nursing school and psychiatric hospital.

▲ **Conn., Southbury**—SCHOOL—Town, Regional School, Southbury, plans by Warren H. Ashley, 967 Farmington Ave., West Hartford, regional high school. $1,079,280. Charles A. Currier & Assoc., 967 Farmington Ave., West Hartford, landscape archts.

▲† **D. C., Wash.**—MEDICAL SCHOOL—General Services Admin., P. Bldgs. Serv., General Services Bldg., Wash., D. C., plans by L. Justement, 2011 K St. N.W., Wash., D. C., medical school at Howard University. $4,436,000.

Ky., Covington—SCHOOL—Bd. Educ., 25 E. 7th St., bond election Nov. 2, elementary school, 28 and Rogers Sts. $900,000. Potter, Tyler, Martin & Roth, 128 E. 6th St., Cincinnati, O., consult. engrs.-archts. CD 2/17.

▲ **Mich., Pontiac**—HOSPITAL—City, $3,000,000 bond election Nov. 2, general hospital. CD 3/26.

▲ **Minn., Worthington**—SCHOOL—Bd. Educ., V. E. Brown, clk., high school, $1,350,000; grade school, $400,000.

▲ **Mo., Joplin**—SCHOOL—Bd. Educ. plans by Peterson & Scharhag, 1103 E. Armour St., Kansas City, Mo., high school, $1,500,000. CD 8/27/52.

▲ **N. J., Princeton**—SCHOOL—Princeton Bd. Educ., Moore St., $1,715,000 bond election Oct. 14, Princeton High School addn. $1,770,000. CD 6/3.

▲ **O., New Richmond**—SCHOOL—Bd. Educ., Market St., bond election Sept. 28, elementary school, present school alterations. $1,500,000. Grunkemeyer & Sullivan & Isaacs, 3717 Eastern St., Cincinnati, archts.

▲ **O., Reading**—SCHOOL—Bd. Educ., Bonnell St., bond election Nov. 2, elementary school. $1,000,000. Grunkemeyer & Sullivan & Isaacs, 3717 Eastern St., Cincinnati, archts.

▲ **Okla., Ponca City**—POWER PLANT, etc.—City, bond election Oct. 5, electric distr. sys. exten. $240,000; engine generator unit for the light plant, $923,000. Pat Schiessinger, c/o owner, engr. CD 10/28/52.

▲ **Pa., Pittsburgh**—HIGH SCHOOL—School Dist. of Wilkins Twp., Greensburg Pike plans by Hunter, Caldwell & Campbell, 3601 Fifth Ave., Altoona, 1 story, brick, block Junior-Senior High School, Wilkins Twp. $1,500,000.

▲ **Wash., Everett**—COLLEGE—School Bd., Everett, bond election Nov. 2, Junior College Bldgs. $2,000,000. H. W. Hall, Commerce Bldg., Everett, archt. CD 8/27/52.

▲ **Wash., Seattle**—HIGH SCHOOL—Shoreline Public Schools, N. 137 St. and Roosevelt Way, plans by Mallis & De Hart, Lyon Bldg., Zone 4, high school. $2,000,000.

▲ **Ont., Toronto**—JUVENILE COURT, etc.—Municipality of Metropolitan Toronto, W. W. Gardhouse, clk., plans

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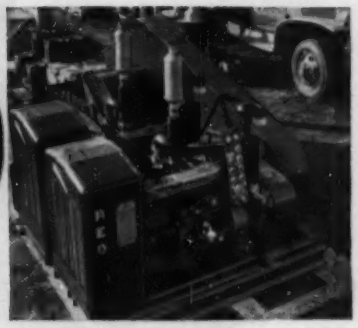

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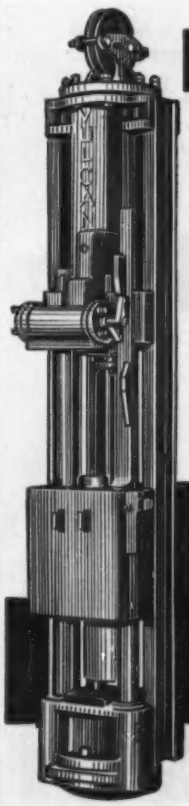

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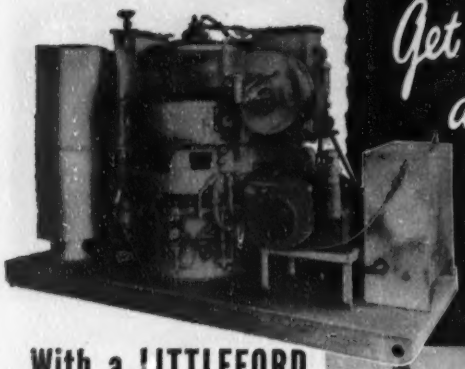

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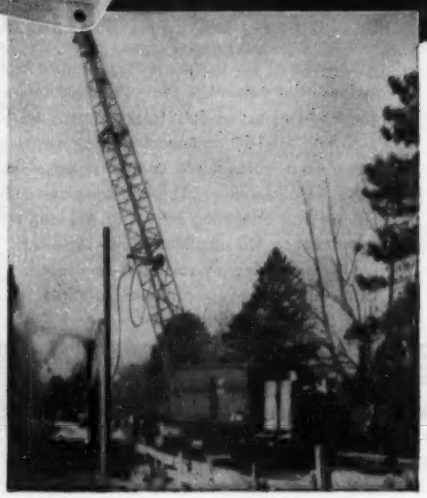

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by Page & Steele, 72 St. Clair Ave. W., juvenile court and detention home, Jarvis St. $1,500,000.

COMMERCIAL BUILDINGS

▲ Calif., Redondo Beach—DWELLINGS—Western Projects Corp., 3842 Wilshire Blvd., Los Angeles, plans by Southwest Drafting Service, 2724 W. Florence Ave., Los Angeles, 109 frame, stucco dwellings, 185 St. and Ingelwood Ave. $1,000,000.

▲ Calif., West Covina—DEPARTMENT STORE—May Co., 8 and Broadway, Los Angeles, plans by Albert C. Martin & Assocs., 333 S. Beaudry St., Los Angeles, department store, Garvey Blvd. and Citrus Ave. $5,000,000.

▲ Ill., Elmhurst—SHOPPING CENTER—Yorkcrest Builders, 348 Iroquois St., Hillside, plans by A. H. Nemoede, 5106 Main St., Dowers Grove, shopping center, Butterfield Rd. and County Line Rd. $3,000,000.

▲ Ind., Fort Wayne—COLLEGE—Lutheran Church—Missouri Synod, Concordia College, Concordia Pl., plans by Eero Saarinen & Assocs., Bloomfield Hills, Mich. college campus, incl. chapel, gymnasium, infirmary, student commons, book store, auditorium, offices, admin. bldg., parking lots, nine small dormitories, $5,000,000. CD 10/29.

▲ Kan., Mission—HOMES—Roe Golf Co., c/o W. L. Brady, pres., Victor Bldg., Kansas City, Mo., 300 homes development on 121 acres Neosho-Reinhardt Sts. and 58-53 Sts. $3,000,000.

▲ Md., Eastover (D.C.P.O.)—SHOPPING CENTER—A. Lloyd Goods, 2001 30 St. S. E., Wash., D. C., plans by Wilson & Denton, 1022 20 St. N.W., Wash., D. C., shopping center, $2,000,000.

▲ Mass., Holyoke—APARTMENT—Maurice A. Rothenberg, 378 Appleton St., plans by R. J. Hubert, 18 N. Main St., South Hadley Falls, 3 story, bsmnt., 63-unit apartment, Fowler Property, Appleton, Locust and Sycamore Sts. $1,000,000.

▲ Mich., Kalamazoo—DORMITORY—Bronson Hospital, Dr. William O. Perdew, supt., Kalamazoo, nurses' dormitory. $1,000,000.

▲ Mo., Kansas City—SHOPPING CENTER—Robt. O., Walter A. and Wm. R. Reich, 1414 Wyoming St., Kansas City, Mo., plans by J. F. Lauck, 6225 Brookside St., Kansas City, Mo. Blue Ridge Shopping Center, 81,800 sq. ft. bldgs., parking area, on 37 acre site, near here. $1,500,000. Hare & Hare, 114 W. 10 St., Kansas City, Mo., site planners.

▲ Mo., Springfield—HOSPITAL—Bd. Trustees, Burge Hospital, 440 S. Market St., crippled children's hospital and nurses' home. $1,048,000. CD 1/9/53.

▲ Mo., Warrenton—MONASTERY—Passionist Fathers, Very Rev. Neil Parsons, Provincial for Western U. S., 7101 Natural Bridge Rd., St. Louis County, Zone 21, monastery, preparatory seminary and retreat house, Boone's Lick Rd. $2,000,000.

▲ Pa., Phila.—SHOPPING CENTER—Syndicate, c/o Albert J. Grosser, Lewis Tower Bldg., shopping center, incl. department store, Willow Grove Park. $10,000,000.

▲ Tex., Arlington—HOTEL—Western Hills Hotel, Inc., c/o Hank Green, 6451 Camp Bowie St., Fort Worth, masonry hotel to be known as "Western Hills Inn" half way between Dallas and Fort Worth, near here. $1,500,000.

▲ Que., Montreal—COLLEGE—Soeurs de Ste Anne, 1950 Provost St., Lachine, plans by Larose & Larose, 1480 St. Joseph Blvd. E., Classical College Institution between St. Laurent Blvd. and Laverdure St. $1,000,000.

INDUSTRIAL BUILDINGS

▲ O., Toledo—FACTORY—General Mills, Inc., Laskey Rd., 1 story, 150,000 sq. ft. factory to mfg. cereals, at rear of present plant, incl. steam generating plant, railroad spurs, etc. $1,500,000.

▲ Pa., Phila.—PLANT—Phila. Electric Co., 900 Sansom St., steam generating plant, vicinity of here. $45,000,000.

▲ Pa., Seward—POWER PLANT—Pennsylvania Electric Co., 222 Levergood St., power plant addn., 125,000 kw installation. $20,000,000. Gilbert Assocs., Inc., 412 Washington St., Reading, engr.

UNCLASSIFIED

▲ Louisiana—OIL LINE—Magnolia Petroleum Co., N. Esperson Bldg., Houston, Tex., 46 mi. 12 in. pipe for laying submarine crude oil line from Atchfalaya Bay west to existing production platform in Gulf of Mexico, $4,500,000; laying submarine gathering crude oil lines to connect with production platforms in Gulf, $500,000.

Mo., St. Louis—TELEVISION STATION—220 Television, Inc., 220 N. Kingshighway Blvd., television station, $976,000. George C. Davis, Munsey Bldg., Wash. 4, D. C., consult. engr.

▲ Mo., St. Louis County—MAUSOLEUM—Laurel Hill Chapels, Inc., Ray L. Johnson, pres., c/o Laurel Hill Cemetery, 2000 N. Pennsylvania Ave., St. Louis County, Zone 14, mausoleum, adjacent chapels, administration bldg. and crematorium on Pennsylvania Ave. south of St. Charles Rock Rd. on Old Maxwellton race track site, $5,000,000.

▲ S. C., Charleston—FREIGHT YARD—Southern Ry. System, G. H. Echols, ch. engr., P.O. Box 1808, Wash. 13, D. C., freight marshaling yard. $1,000,000.

▲ Texas—RURAL DISTRIBUTION LINES—Medina Electric Co-operative, Hondo, 581 mi. rural distr. lines, Medina Co. $1,470,000. REA allot. CD 4/15/52.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 28 Massachusetts

BIDS ASKED—BUILDINGS

▲ **Mass., Newton**—WAREHOUSE—BA 9/30—Jordan Marsh Co., 450 Washington St., Boston, (selected list bidders) warehouse Auburndale, 275 Grove St. $3,600,000. David Griswold, 80 S. Seventh St., Minneapolis, Minn., archt. CD 9/8.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
S & M Constr. Co., 30 Salmon St., Providence, R. I. LB $3,191,828, hy. and bridge Athol and Phillipston;
Berke Moore Co., Inc., 8 Newbury St., Boston, Mass. LB $3,897,264. Sect. 1, Contr. 1 Northeast Expressway, Chelsea. Bids Sept. 14. CD 8/23 and 9/8.

▲ **Pacella Bros., Inc.**, 247 Washington St., Dedham, Mass. CA $2,324,590, est. $2,000,000. Contr. 35, Third Provin Mountain Conduit, Agawam, West Springfield and Springfield, SPRINGFIELD, MASS. City, Bd. Water Comrs., Municipal Bldg., Springfield, Mass. CD 9/7, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 29 Maryland October 5 New Jersey

▲ **NEW JERSEY-PENNSYLVANIA**—BA 11/10—Delaware River Port Auth., Administration Bldg., Camden, N. J.
Contract G-2, superstructure for approaches from Gloucester Anchorage to Newton Creek for new bridge between Packer Ave., Phila., Pa., and Gloucester, N. J. $5,000,000. CD 5/26/52.

▲† **D. C. Wash.**—BA 11/23—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., Dalecarlia Pumping Station northwest section of Wash., D. C., 6 mi. from center of city at Dalecarlia Filter Plant, 5900 MacArthur Blvd. Bid date changed. Greeley & Hansen, 220 S. State St., Chicago, Ill., engrs. CD 8/25.

BIDS ASKED—BUILDINGS

▲ **Pa., Phila.**—OFFICE—BA 9/29—Thalheimer & Weitz, archts., 1325 Walnut St., Phila., office bldg. (conversion from Ritz-Carlton Hotel), for Pennsylvania Lumbermens Mutual Insurance Co., Market St. Natl. Bank Bldg., Phila. $3,000,000. CD 4/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, Zone 1.
Brunner Asphalt & Constr., Inc., 237 Kensington Ave., Buffalo, N. Y., CA $557,981, est. $564,000, 1.38 mi. High Level Bridge Approaches, City of Buffalo, Fuhrmann Blvd., FAC 54-9, Erie Co.;
Daniel F. MacNamee & Co., Inc., New Rochelle, N. Y. CA $569,716, est. $617,000, 1.81 mi. New York State Thruway-Hudson Sect.-Sub. 9A (Tappen Zee Bridge-Tarrytown Approach; Access Ramps and parking lot), H.T. 54-3, Westchester Co.;
H. L. Baughman, Inc., E. Henrietta Rd., Rochester, N. Y., CA $744,623, est. $826,000, 1.17 mi. Kitts Corners Naumburg, Pt. 2, FASSH 54-14, Lewis Co.;
Whiffen Electric Co., Inc., & Nager Electric Co., Inc., 84 Martine Ave., White Plains, N. Y., CA $659,400, est. $808,000, 3.39 mi. New York State Thruway Hudson Sect.-Sub. 9B (Tappen Zee Bridge and approaches), H.T. 54-1, Rockland and Westchester Counties;
West Shore Concrete Co., Inc., & Garofano Constr. Co., Inc., Euclid Contg. Corp., 2 Gramantan Ave., Mount Vernon, N. Y., CA $3,623,480, est. $4,080,000, 3 mi. New York State Thruway-Hudson Sect. Sub. 9B (Tappen Zee Bridge), H.T. 54-2, Rockland and Westchester Counties. Grand total $6,155,200. Bids Aug. 19. CD 8/23, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Depew Paving Co., Inc., 4955 Broadway, Depew, N. Y. CA $1,394,122, est. $1,600,000, 6.84 mi. Sinclairville-Cassadaga, Pts. 1 and 2, SH 1012-1012A-8108, Pratt Corner-Sinclairville, SH 1471, FARC 54-75, Chautauqua Co.; $2,496,252, est. $2,690,000, 10.07 mi. Ellicottville-Springville, Pts. 2 and 3, Springville Village, SH 989, Hamburg-Springville, SH 528, FASSH 54-13, FARC 54-76, Cattaraugus and Erie Counties;

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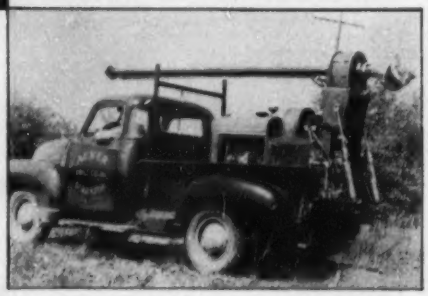

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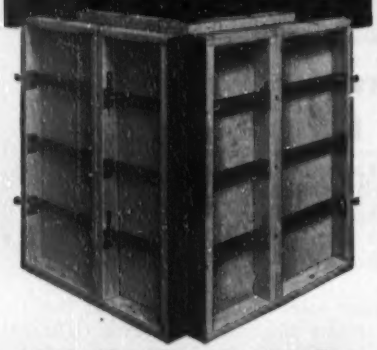

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HARTFORD 15, CONNECTICUT

Serafini Constr. Co., Inc., Conklin Rd., Binghamton, N. Y., CA $537,647, est. $603,000, 3.85 mi. SH 273-Madge, Cont. No. 1, FASSH 54-12, Seneca Co.; **Central New York Contg. Co., Inc.**, Syracuse, N. Y., CA $777,471, est. $845,000, 9.58 mi. Dryden-Harford, SH 8016, Harford Mills-Dryden, Pt. 1, SH 1075; Harford SH 379 and Richford-Harford Mills, SH 1452, FARC 54-77, Tompkins, Cortland and Tioga Counties. Grand total $5,205,492. Bids July 1. CD 7/7, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, **Johnson, Drake & Piper, Inc.**, 86 Trinity Pl., New York 6, N. Y., CA $5,464,337, est. $6,407,000, 6.35 mi. Thwy., 3.44 mi. Acc. Mi., Marginal Rds. A, B, C, N.Y.S. Thwy-Erie Section, Sub 5 (Route 20-Four Mile Level Rd.) 4 misc. sec. Cross Rds. and Silver Creek-Forestville, SH 1469, C.T. 54-2, S.T. 54-3, R.C. 54-95, Chautauqua and Erie Counties;

D. W. Winkelman Co., Inc., Heffernan Bldg., Syracuse, N. Y., CA $3,323,476, est. $4,637,000, 6.54 mi. Thwy., 2.92 Acc. Mi., N.Y.S. Thruway-Erie Sect. Sub. 4 (Roberts Rd.-Rte. 20) 7 misc. Cross Rds. and Fredonia-Silver Creek, Pt. 3A, SH 8038, E.T. 54-1, S.T. 54-2, R.C. 54-94, Chautauqua Co.;

Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., CA $933,723, est. $1,137,000, 1.38 mi. Peninsula Blvd., Contr. 3, Ocean Ave., FASS 54-13, Nassau Co.;

Arute Bros., Inc., 560 S. Main St., New Britain, Conn., CA $3,628,073, est. $4,586,000, 7.08 mi. Elmira-Lowmann, SH 5207, Elmira-Horseheads Conn. Pt. 1 and 2, Elmira City; East Church St., Elmira-North Elmira Exten., Horseheads-Montour Falls, SH 5208, FASH 54-15, FAC 54-11, FARC 54-89, FASH 54-16, Chemung Co. Grand total $13,349,609. Bids Aug. 19. CD 8/23, under LB.

▲ **NEW JERSEY-PENNSYLVANIA**—Delaware River Port Auth., Administration Bldg., Camden, N. J., **Bethlehem Steel Co.**, E. 3 St., Bethlehem, Pa., CA, $6,970,681. Contract P-3, viaduct superstructure, Phila. Anchorage to 2nd St. for bridge between Packer Ave., Phila., Pa. and Gloucester, N. J. Bids Sept. 9. CD 9/13, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Irons & Reynolds, Inc.**, 420 Lexington Ave., New York 17, N. Y., CA Approx. $3,000,000. 12 story APARTMENT, 349-355 W. 145 St. and 251-265 Edgecombe Ave., NEW YORK, N. Y. Bowery Savings Bank, 110 E. 42 St., New York 17, N. Y. CD 5/5.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
October 11 Virginia

BIDS ASKED—BUILDINGS

▲† **Va., Fort Eustis**—BARRACKS, etc.—BA 10/5—U. S. Eng., foot of Front St., Norfolk, four 39x265 ft. enlisted mens barracks, 33x120 ft. mess hall, structural steel, concrete slab on ground, incl. railroad siding, central heating plant, coal silo, steam and electric distr. sys. and paving. $3,463,000.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Frank J. Rooney, Inc.**, 5880 N.E. 4 Ave., Miami, Fla., CA, $3,000,000 DEPARTMENT STORE, MIAMI, FLA. Bessemer Properties, Inc., 1317 Biscayne Blvd., Miami Beach, Fla. CD 7/1.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
October 5 Wisconsin
STREETS AND ROADS
October 5 Wisconsin

▲ **O., Akron**—BA 10/6—City, Leo G. Walter, dir. P. Service, Municipal Bldg., sewage treatment imprvs., incl. grit chambers, meters, comminutor and service bldg., and connecting conduits and piping at Akron Sewage Treatment Plant at Botzum, Contr. No. 19. Plans deposit $60. Havens & Emerson, 640 Leader Bldg., Cleveland, engrs. CD 5/5.

▲ **O., Toledo**—BA 11/3—City, John Alspach, Serv. Dir., City Hall, expansion Collins Park water filtration plant, to add 40 m.g.d. to present 80 m.g.d. capacity. $3,700,000. Finkbeiner, Pettis & Strout, 518 Jefferson St., engrs. George Van Dorp., c/o owner, ch. WW engr. CD 9/5/52.

BIDS ASKED—BUILDINGS

▲ **Mich., Lansing**—CITY HALL, etc.—BA 10/25—City, City Hall, 10 story, 188x768 sq. ft. steel, aluminum, glass city hall; 6 story, 65x100 ft. steel, masonry limestone police bldg. $3,500,000, Lee & Kenneth C. Black, 706 Capitol Savings & Loan Bldg., Lansing, archts. CD 8/13/53.

SOON LETS CONTRACT—BUILDINGS

▲ **Ind., Gary**—GENERATING PLANT—Northern Indiana Public Service Co., 5265 Hohman St., Hammond, soon lets contract, generating plant, $20,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago 3, Ill., engrs. CD 9/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis. **Western Conts. Corp.**, 400 Benson Bldg., Sioux City, Ia., LB, **$6,898,586,** completion June 1956; LB, **$6,948,589,** completion October 1955; combined 3 contracts; Contract C-38, C-39, C-40/41, paving, etc. 14 mi., Indiana East-West Toll Road, in Elkhart and LaGrange Counties. Bids Sept. 15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **J. and L. Realty Co.**, 801 Lemcke Bldg., Indianapolis, 9, Ind. and **Holliday Park Realty,** 136 N. Delaware St., Indianapolis 9, Owner Builds. **$13,000,000,** 1,200 HOMES, West 30 St. on 400-acre tract, INDIANAPOLIS, IND.

▲ **Community Homes, Inc.**, Attention Mr. Robert Dunn, Whiteland, Ind., Owner Builds. **$7,500,000.** 720 HOMES in new WHITELAND, IND.

▲ **Tiffany Realty Co.**, 15852 Crescent St., Allen Park, Mich. Owner Builds. **$4,000,000.** Crescent View, brick ranch HOMES, Reeck, Allen Rd., Park Ave., ALLEN PARK, MICH.

▲ **Felix Wolderzak**, 5290 Swan Creek Rd., Saginaw, Mich. CA Est. **$3,000,000.** 300 single HOUSES and SHOPPING CENTER, BRIDGEPORT, MICH. Alfred F. Mardon, Bridgeport Lumber Co., Bridgeport, Mich.

▲ **Belaire Land Development Co.**, Fleming and West Pierson Rd., Flint, Mich. Owner Builds, **$7,000,000.** 600 brick HOUSES, FLINT, MICH.

▲ **Madison Constr. Co.**, 600 Woodward Ave., Detroit, Mich. CA Est. **$8,000,000.** 600 brick single HOUSES, Harper and 13 Mile Rd. west of Jefferson St., ST. CLAIR, MICH. Hannan Real Estate Exchange, Inc., 300 Lafayette Bldg., Detroit, Mich.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **H. B. Zachry Co.**, W. Harding Blvd., San Antonio, Tex., CA **$2,730,609,** est. $2,793,520, aircraft parking aprons, etc., Abilene Air Force Base, ENG-41-443-55-11, ABILENE, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Sept. 9, awarded Sept. 12. CD 9/14, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **K. C. Enlor Constr. Co.**, 6826 E. 23 St., Denver, Colo., Owner Builds. **$8,750,000.** 550 new HOMES in Harvey Park, DENVER, COLO.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 6, 7 California

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **L. C. Anderson Co.**, 3040 Hancock St., San Diego, Calif., LB, **$3,361,600.** New Gardena High SCHOOL, Gardena, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Sept. 10. CD 9/1.

▲ **Rosemead Park Co.**, 8687 Wilshire Blvd., Los Angeles, Calif., Owner Builds, **$2,312,000,** 272 frame, stucco DWELLINGS, Aero, Myron Sts. and Shady Lane, WHITTIER, CALIF. Martin Stern, 450 N. Beverly Dr., Beverly Hills, archt.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 29 Ontario

BIDS ASKED—BUILDINGS

▲ **Ont., North Bay**—HOSPITAL—BA 10/14—Dpt. P. Wks., Parliament Bldgs., Toronto, Ontario Hospital initial group of bldgs. and tunnels, Cooks Mills. $9,000,000. Plans deposit $75. CD 6/29.

▲ **N. S. Halifax**—FEDERAL OFFICE—BA 10/20—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., federal office bldg., Hollis St. $3,500,000. Plans deposit $500. E. A. Gardner, c/o owner, archt. CD 1/4/50.

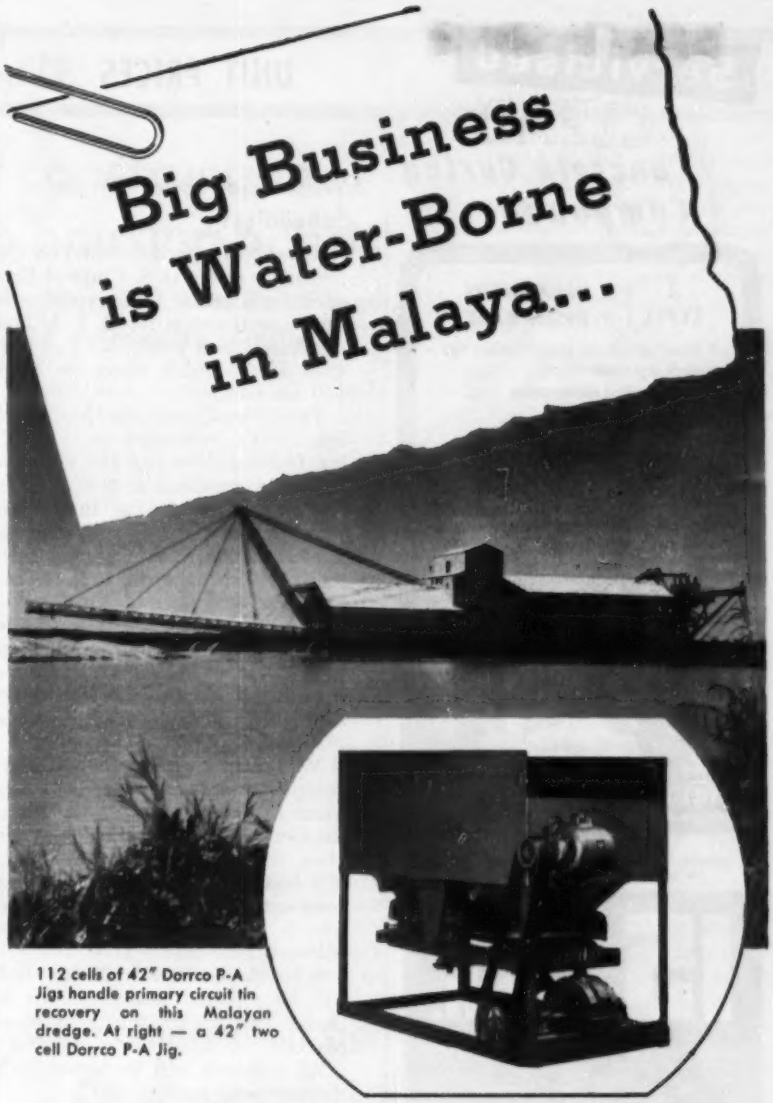
▲ **Man., Winnipeg**—POST OFFICE—BA 10/27—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. about 10 story, post office, Graham Ave. $15,000,000. Plans deposit $500. Green, Blankstein, Russell & Assocs., 222 Osborne St. N., Winnipeg, engrs. CD 10/29/52.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bird Constr. Co. Ltd.**, Sargent and Erwin Sts., Winnipeg, Man., CA, **$2,500,000.** HOSPITAL exten. WINNIPEG, MAN. Childrens Hospital, Winnipeg General Hospital Bd., Winnipeg, Man. Bids Sept. 3. CD 8/24.

(Proposal Advertisements see pp. 75 to 78)



112 cells of 42″ Dorrco P-A Jigs handle primary circuit tin recovery on this Malayan dredge. At right — a 42″ two cell Dorrco P-A Jig.

Placer tin mining is big business in Malaya — source of better than a third of total world production. And dredging for the tin-bearing matrix is a big tonnage operation. For instance, the 304′ dredge pictured above can dig 480,000 cubic yards per month from 130 feet below water level.

The bucket line discharges matrix to a trommel screen where oversize waste is separated from minus ⅜″ feed for further processing. First step, and point of maximum tin concentration — fourteen batteries of Dorrco P-A Jigs, each comprising eight 42″ x 42″ cells. These units are compact and light in weight — important considerations in water-borne operations.

Tin recovery in Malaya may be of academic interest only to you. But, if you have problems involving any phase of the separation of finely divided solids in suspension — or ion-exchange — or fluidizing techniques... chances are that our worldwide organization can help you.

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UNIT PRICES

West Point sewer system, Schedule I

Seven bids opened at New York District office of the U. S. Corps of Engineers for Schedule I of a sanitary sewage disposal system for U. S. Military Academy, West Point, N. Y., ranged from 5% to 162% above the $255,-569 estimate.

Peter Riess Constr. Co., Inc., Brooklyn, N. Y., submitted the $157,078 low base bid, 29% and $63,458 under second by the Conduit & Foundation Corp., Philadelphia, Pa. Intercepting sewers of vitrified clay, cast iron, and reinforced concrete pipe total 6,160 linear feet and are included in the base bid.

When prices of the five additive items of Schedule I are counted, Riess is still low at $269,073, Conduit & Foundation still second with $304,-632; their difference is reduced to 12% and $35,558.

What narrows the gap is the "reconstruction of sewers" additive item where the Riess bid is $74,330 against the Conduit & Foundation's $41,450. Here, the Riess Company went $20,-000 higher than the C&F Corp. on construction wood sheeting ordered left in place, estimating $500 per Mfbm against C&F's $100.

Schedule II–$1,001,279 low bid–will be reported next week. It include's two sewage treatment plants plus additive item of flow regulator.

All materials will be furnished by the contractor.

Bidders include:

Schedule I—Base bid plus additive items

1	Peter Riess Constr. Co., Inc., Bklyn, N. Y.	$269,074
2	The Conduit & Fndn. Corp., Phila., Pa.	304,632
7	The Nicholson Co., Inc., New York, N. Y.	670,309
EE	U. S. Corps of Engineers, New York 13, N. Y.	255,569

Bids: 8-26-54 Item	Unit	Quantity	Unit Prices 1	2
Base bid—intercepting sewers				
Exc, addnl common	cy	100	$3.00	$6.00
rock	cy	700	30.00	33.00
Borrow	cy	600	2.50	2.00
Constr wood sheetng, lip	Mfbm	10	500.00	200.00
Broken stone fndn	cy	100	8.00	10.00
Sewer, in place, VCP 8" at 0-6'	lf	320	4.25	14.00
6-8'	lf	330	5.00	16.00
8-10'	lf	130	7.00	21.00
10" at 0-6'	lf	910	4.75	15.00
6-8'	lf	170	5.25	17.00
CIP 10" at 0-6'	lf	30	13.00	27.00
12" at 0-6'	lf	250	17.00	26.00
6-8'	lf	10	20.00	30.00
8-10'	lf	10	23.00	47.00
10-12'	lf	10	26.00	45.00
12-14'	lf	10	30.00	53.00
RCP 12" at 0-8'	lf	850	7.00	15.00
8-8'	lf	1,410	8.00	17.00
8-10'	lf	90	11.00	30.00
10-12'	lf	80	14.00	38.00
18" at 0-8'	lf	1,000	9.00	24.00
8-10'	lf	360	12.00	18.00
10-12'	lf	70	16.00	35.00
12-14'	lf	290	20.00	42.00
Manhole at 0-6'	ea	15	$375.00	$350.00
6-8'	ea	19	450.00	410.00
8-10'	ea	6	475.00	480.00
10-12'	ea	4	500.00	550.00
12-14'	ea	1	525.00	660.00
Track crossings	ls	1	28,253	6,000
Conc, addnl "AA"	cy	10	200.00	125.00
"C"	cy	10	50.00	90.00
Reinf stl, addnl	lb	500	0.20	0.17
Restore pvmt, conc	lf	55	10.00	6.00
macadam	lf	2,375	5.00	4.00
walks	lf	40	3.00	1.10
curbs	lf	145	4.00	5.00
sodded areas	lf	2,570	1.00	2.00
seeded areas	lf	425	0.30	0.30
Topsoiled & seeded areas	sy	30	0.60	2.50
Additive item—hanger sewer & ejector manhole				
Exc, addnl common	cy	10	3.00	6.00
rock	cy	50	30.00	33.00
Borrow	cy	25	2.50	2.00
Constr wood sheetng, lip	Mfbm	2	500.00	200.00
Broken stone fndn	cy	10	8.00	10.00
Manhole 0-6'	ea	3	400.00	300.00
6-8'	ea	1	450.00	360.00
Conc, addnl "AA"	cy	1	200.00	125.00
"C"	cy	1	50.00	90.00
Reinf stl, addnl	lb	100	0.20	0.17
Restore conc pvmt	lf	115	10.00	6.00
seeded area	lf	30	1.00	0.30
Topsoiled & seeded area	sy	20	0.60	2.50
CI force mn, in pl, 4"	lf	15	7.00	19.00
sew, in pl, 8" at 0-6'	lf	390	11.00	14.00
6-8'	lf	40	13.00	18.00
8-10'	lf	20	17.00	23.00
Hangar sewage ejector MH & equip, compl	ls	1	13,278	11,000
Reconstruction of sewers				
Exc, rock	cy	105	30.00	40.00
Constr wood sheetng, lip	Mfbm	50	500.00	100.00
Broken stone fndn	cy	10	8.00	10.00
Reconstr sew at MH #D5	ls	1	200.00	300.00
7	ls	1	500.00	700.00
8	ls	1	5,000	1,250
9	ls	1	6,000	3,200
10	ls	1	5,000	3,600
12, 8 & 13	ls	1	15,500	8,600
14	ls	1	6,000	3,700
15	ls	1	300.00	2,900
16	ls	1	2,500	3,500
19	ls	1	3,500	1,700
27	ls	1	1,600	2,700
Filter plant sewer				
Exc, addnl common	cy	10	3.00	16.00
rock	cy	80	30.00	42.00
Borrow	cy	40	2.50	2.00
Constr wood sheetng, lip	Mfbm	1	500.00	200.00
Broken stone fndn	cy	10	8.00	10.00
Manhole 0-6'	ea	1	400.00	300.00
6-8'	ea	3	450.00	360.00
8-10'	ea	1	500.00	425.00
Restore macadam pvmt	lf	55	5.00	3.50
walks	lf	5	3.00	1.10
curbs	lf	5	4.00	5.00
sodded areas	lf	10	1.00	2.00
seeded areas	lf	270	0.30	0.30
Alter MH #95	ls	1	150.00	200.00
Sewer, in place, CIP 6" at 8-10'	lf	8	20.00	45.00
VCP 4" at 0-6'	lf	15	5.00	20.00
6" at 0-6'	lf	310	5.50	16.00
6-8'	lf	60	6.00	18.00
8-10'	lf	10	8.00	27.00
East academic building sewer				
Exc, addnl common	cy	10	3.00	20.00
rock	cy	10	30.00	40.00
Borrow	cy	5	2.50	2.00
Constr wood sheetng, lip	Mfbm	1	500.00	200.00
Broken stone fndn	cy	5	8.00	10.00
Sew, in pl, VCP 8" at 0-6'	lf	34	5.00	26.00
Manhole 0-6'	ea	2	450.00	300.00
Restore macadam pvmt	lf	20	5.00	3.25
walks	lf	6	3.00	1.10
curbs	lf	10	4.00	5.00
sodded areas	lf	10	1.00	2.00
Sew, in pl, CIP 8" at 0-6'	lf	40	13.00	26.00
Cullum Road storm drain				
Exc, addnl common	cy	10	3.00	20.00
rock	cy	30	30.00	42.00
Borrow	cy	15	2.50	2.00
Constr wood sheetng, lip	Mfbm	1	500.00	200.00
Broken stone fndn	cy	5	8.00	10.00
Sew, in pl, RCP 18" at 8-10'	lf	60	14.00	28.00
Restore macadam pvmt	lf	8	5.00	3.20
curbs	lf	8	4.00	5.05
sodded areas	lf	10	1.00	2.00
seeded areas	lf	45	0.30	0.30

Green light for construction: Bidders snap up housing bonds

This is a good sign that the heavy fall schedule of bond issues for construction will be welcome to investors

The heavy fall schedule of bond financing for construction passed its first hurdle last week. Three groups of underwriters bid for the $136-million bond issue by 14 local housing authorities, the 11th issue guaranteed by the Public Housing Administration since 1951.

Average interest cost to the borrowers was 2.33%, compared with 2.27% at the last sale, in June. A group of underwriters headed by the Chase National Bank, New York, took about $98 million worth of the bonds, while about $19.5 million were taken by a syndicate headed by the Wall Street investment houses of Lehman Brothers, Blyth & Co., Inc., and Phelps, Fenn & Co. A group headed by the big Bank of America, of San Francisco, bought $18 million of California issues.

• **What it means**—This is what is encouraging for construction about the sale: The Chase group showed itself anxious to get the bonds, bidding about $8 per $1,000 bond ahead of the losing bidders on the issues which it won. And investors are readily buying from the underwriters. That is significant, in view of the huge volume of issues coming up. Investors could well afford to be choosy about buying, knowing that they will have plenty of chances later on to invest their money.

Of course, one major reason for the housing bonds' success is the fact that they are not only tax-exempt, but guaranteed by the Public Housing Administration. That makes them unusually attractive. Though investors had been slow to appreciate this fact until last year, their attitude is changing.

• **Background for fall**—Now Wall Street is preparing itself for a flood of financing, most of it revenue bonds issued by states and local governments, and much of that for turnpike construction.

This fall schedule is gradually becoming clearer. The Kansas Turnpike Authority has jumped the date of its $160-million offering forward to this week, instead of Oct. 1. Next week, Ohio plans to sell $30 million of intermediate-term bonds, taking a small bite out of the $500 million authorized last winter by the legislature. The Mississippi River Bridge Authority will sell a $65-million issue Oct. 5.

It now looks as if two king-sized issues which might have been brought to market this year have been postponed until 1955. The $315-million New York State Power Authority offering is now scheduled for early next year, and the $200-million North Carolina Turnpike Authority issue is now looked for sometime in 1955. This is going to make market congestion less likely this fall.

That should help the bond market, which is already strong.

For example, the Wall Street house of Thomson & McKinnon has just published a comparison of market prices on all turnpike issues already in investors' hands, as they were in mid-June and as they were in early September. This compilation shows that the market value of many outstanding toll issues has advanced substantially in the past ten weeks or so. There have been no price declines, and only one issue has stood still.

• **Popular**—Samples: The Connecticut Expressway 2⅞s maturing in 1988 and 1989 have advanced from par to 109% of par. The New York State Thruway "A" series 3.10s of 1994 have advanced from 100¾% of par to 107¼%. The Indiana Toll Road 3½s of 1994 have risen from 104½% of par to 106¾.

All this should be very cheering to highway contractors and consulting engineers. It indicates that they have plenty of prospective work ahead for 1955 and 1956. The bond market is bullish and, although the volume of prospective financing is huge, the amount of funds piling up in investors' hands to buy these issues is also huge.

In spite of the fact that this year so far has been a year of recession compared with the same months of 1953, volume of individual saving is running slightly higher up to now than last year. The rate of individual savings is running at an annual rate of $20 billion, the highest since World War II. Much of this is channeled into thrift institutions which buy turnpike issues.

Bid competition tightens in Ohio

Contractors are putting in more bids for highway work, but their "bidding average" keeps right on dropping

Judging by reports from the Ohio Department of Highways, competition for highway construction jobs is getting tighter all the time.

Reports became available this week on bidding for highway work in Ohio during the first half. They showed that the number of bids contractors were making has been increasing at a faster rate than the number of available jobs.

One good reason probably is the increased dollar volume of work available on the Ohio Turnpike. Total value of contracts awarded during the first half was $51.4 million, compared with about $64 million in all of 1953.

During the first half, 230 contractors submitted 935 bids for 218 contracts, compared with 256 contractors making 1,411 bids on 392 jobs all last year.

• **Bidding average down**—Contractors' "bidding averages" were lower during the first half than in the full year of 1953. The latest overall average is .233 contracts per bid, compared with .278 last year. In 1952, the bidding average was .348.

This decline hit all groups of contractors, from the 11 qualified to bid on jobs up to $25,000 to the 104 who were qualified to bid on jobs over $3 million. Every group did worse on its bidding average. Smaller contractors, those qualified on jobs costing up to $100,000, put in 10 bids and got no contracts at all.

Last year, contractors who had been qualified to bid on jobs over $3 million had a better bidding average than in 1952, and so did contractors qualified for work costing between $100,-

(*Continued on page 70*)

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AND DON'T FORGET YOU CAN REPLACE A BROKEN MATHEWS WITH A NEW BARREL IN A FEW MINUTES
MATHEWS ARE TOPS FOR EFFICIENCY IN SERVICE
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MATHEWS Means Dependable Hydrants

LONG LIFE. Mathews Hydrants have bronze parts at critical points—corrosion, rust and wear are thoroughly licked.

TROUBLE-FREE. The stuffing box plate, cast integral with the nozzle section, provides a positively leak-proof construction — water, sediment and ice cannot interfere with operating thread.

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The Mathews includes every quality feature . . .

Compression type valve to prevent flooding • Head turns 360° simply by loosening bolts • Replaceable head • Nozzle sections easily changed • Nozzle level can be raised or lowered without excavation • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • A modern barrel makes an old Mathews good as new • Mechanical-joint pipe connections as needed

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000 and $300,000. But this time, no group did better.

• **Big contractors do best**—As was the case last year, the group with the best average consisted of the bigger contractors. This time, they averaged .291 contracts per bid. The group with the next best showing was the $300,000 to $500,000 category, with a bidding average of .269.

It's significant to note that during the first half there were 104 contractors qualified to bid jobs over 3 million, compared with 87 in 1953. There was also a big jump in the number of contractors qualified to bid in the $500,000 to $1,000,000 range.

All this means just one thing: tougher competition all along the line.

Budget changes

They leave construction spending about the same

Federal spending for construction in the current fiscal year will ride along at about the $5.9-billion level estimated last January. New estimates of expenditures in the President's budget review last week indicated higher levels for some items, lower levels for others, with the changes apparently just about canceling out each other.

Because the review is less detailed than the major document delivered to Congress at the beginning of the session, precise comparisons of earlier and current estimates are not feasible. But the review does point up some notable revisions.

• **Boost for Fanny May**—Biggest of these is an increase of $533 million in gross spending of the Housing and Home Finance Agency. Main reason for the rise is an increase of $411 million in estimated expenditures of Fanny May (Federal National Mortgage Association), chiefly to purchase mortgages under one-for-one contracts. More commitments of this kind were made than expected last January; builders and investors took full advantage of the opportunity while it lasted to buy mortgages from Fanny Mae in exchange for a promise from the agency to purchase an equal amount from them within a year, on demand.

The largest drop in estimated construction expenditures apparently hits military public works. The budget review talks of $1.35 billion for this item. Last January, the original budget

message estimated $1.65 billion, indicating a $300-million shrinkage.

On the plus side again, an identifiable increase over January estimates for federal-aid highways shows up in the review. Payment on these grants to the states is now expected to total $600 million in the current fiscal year, as compared with $545 million previously estimated.

• **Hard to pin down**—Other changes from January construction estimates are much harder to pin down in the budget review. The review quotes figures for total expenditures by agencies and by programs, but these estimates take in more than construction.

Under natural resources, (for example, the budget review lists gross expenditures of $1.3 billion and net expenditures of $1.1 billion). Further, it notes that about half of the net will be for projects of the Corps of Engineers and the Reclamation Bureau. Last January, the combined construction estimate for these two amounted to $507 million. It would seem that this construction spending figure has been adjusted upward, if at all, but the precise relationship cannot be established.

• **AEC spending**—Among other important programs, the review states that expenditures for plant construction by the Atomic Energy Commission (the bulk of which is already under contract) will continue at about last year's level. This was previously estimated between $1.2 and $1.3 billion. And TVA's construction spending is $22 million higher than fiscal 1954, as estimated in the original budget.

The review mentions an increase of $45 million in net expenditures for schools in federally affected areas. But it says the expanded hospital aid program will require no increase in net expenditures for hospitals.

Overall, increases and decreases pretty nearly balance out. The budget review is too condensed to make the judgment final, but it looks as if the federal government will spend for construction in this fiscal year just about what was estimated nine months ago.

New England utilities form atomic energy subsidiary

Eleven New England utility companies, accounting for 90% of electric output in the region, are forming a new company that may some day build

(*Continued on page 72*)

New Technique for Shoring—It Rolls!

The contractor on this job really saved by erecting shoring-units with standard Ezebilt steel-panel Scaffold-for-Shoring, then mounted them on adjustable screwjacks (with casters) like this—

After the first concrete slab was poured, (at 21-ft. height) the entire shore-unit was lowered on the casters, then rolled on to the next bay—with the forms intact! Here were his savings: one rolling rig shored

four slabs, eliminated tearing-down and re-erecting the shoring *three times!* He also saved on lumber and form-work—no re-handling no re-setting of forms. And, his erection cost was way down because his scaffold went "*Up Faster—no bolts to master*", thanks to Ezebilt's Gravity-Lock mechanism.

You can save on any shoring job with Universal 'Scaffold-for-Shoring', then use the same Panels for masonry work. Let us help you on that next job with UNIVERSAL Ezebilt SCAFFOLDING

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Fairless Works of United States Steel Corporation's plant at Morrisville, Pa., on the Delaware River, is the country's largest single steel construction project undertaken at one time. Waterproofing done by Lewis and McDowell, Inc., New York City.

When permanent waterproofing was wanted on the foundation of U. S. Steel's new "Fairless Works," Karnak was chosen by the contractor. The world's most modern steel mill called for the best in all materials. That's why 750,000 yards of Karnak were used to protect against water, wherever there was a hydrostatic head.

Why Karnak? Because it has the Membrane System of waterproofing *that holds secure* against hydrostatic head or any water condition.

The secret to the extreme water resistance is the Karnak Membrane Fabric. Open Mesh Cloth, specially woven of long-fiber cotton is carefully saturated with highly refined asphalt so as to leave the mesh open. When this fabric is layered on the job with alternate moppings of liquid asphalt, it provides a tough, thoroughly waterproof membrane that resists cracks, abrasion and settling to maintain water resistance through the life of the structure.

The Karnak system is also the best for roof patching, skylight flashing, window and door flashing, through-wall and cornice flashing, as well as waterproofing against a hydrostatic head in dams, swimming pools, viaducts and tunnels... *Lewis Asphalt Engineering Corp., 30 Church St., New York 7, N. Y.*

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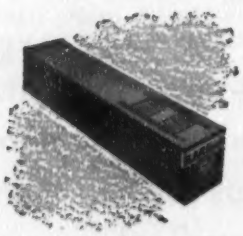

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an atomic power plant. The new company, to be called Yankee Atomic Electric Co. will start discussions with the Atomic Energy Commission.

Says Yankee Atomic's president, William Webster: "It may take several years of experimental work before we can determine to what extent atomic energy will be used in the future."

Future lumber use

Research Institute makes some forecasts on prices

During the next 20 years, lumber prices will probably rise more rapidly than prices of competing materials. That's the estimate of the Stanford Research Institute in a report, "America's Demand for Wood," prepared for Weyerhaeuser Timber Co., of Tacoma. However, the Institute expects that the price rise will be smaller between 1952 and 1975 than it was between 1929 and 1952.

• **Plywood and hardboard**—The Institute's guess is that plywood prices will rise less than lumber prices in relation to competing materials. Hardboard and insulating board prices may be slightly lower in 1975 than they are now. In fact, there is a possibility of a major decline in all building board prices if the heavy swing toward production of building boards provides new capacity faster than expected market growth.

The forecast is that a higher proportion of lumber will go into residential building and less to other building uses. Cost per sq. ft. of 1,000 sq. ft. dwelling is expected to rise from $9.28 in 1952 to $9.63 (at 1952 prices) by 1975.

• **Less lumber per home**—Lumber consumption per dwelling unit is expected to decline about 17% from 1953 to 1975.

Floors, exterior walls, foundations, millwork, and roofs may require less lumber. Masonry construction will gain in popularity while fewer homes will use sheathing materials.

Use of plywood, according to the Institute, will increase from about 1 billion sq. ft. in 1953 to almost 1.9 billion sq. ft. in 1975, with greatest use in ceilings, interior walls, and roofs.

Insulating board will compete with plywood for the exterior wall sheathing market.

Use of hardboard in home building will increase from 218 million sq ft in

1952 to almost 1.3 billion sq ft in 1975, in much the same uses as plywood, with the addition of millwork. In nonresidential construction, use of hardboard is expected to more than triple.

These estimates are based on an overall forecast that construction-in-place spending will increase from $32 billion in 1952 to almost $52 billion (1952 dollars) in 1975.

Re-used lumber will triple in importance as a source of material, the institute feels. The gain will be from 500 million bd ft in 1952 to an estimated 1½ billion in 1975.

Business briefs . . .

• **Home building** continues to pick up steam, encouraged by the new housing act. The Veterans Administration says it received appraisal requests for 55,350 proposed home units in August. That's the biggest volume this year, and the heaviest monthly volume in several years.

• **Steel expansion**—U. S. Steel Co. is making plans for major improvements in facilities for turning out light structural steel sections at Pittsburgh and Chicago plants. It also is considering a multi-million-dollar steel pipe plant at the Geneva Works in Utah and an anhydrous ammonia plant at Geneva.

• **Biggest titanium plant** in the U. S., a $31.5-million job, will be built near Ashtabula, Ohio, by Union Carbide & Carbon Corp. under contract with the General Services Administration. The Electro Metallurgical Co., UCC division, will use its funds for design, construction and equipping of the plant. Annual production, expected to be about 7,500 tons, will boost planned titanium capacity by nearly 50%. Catalytic Construction Co., Philadelphia, will design the plant.

• **Fluor expansion**—Fluor Corp. Ltd., of Los Angeles, has bought a majority stock interest in Singmaster & Breyer, Inc., New York specialists in process engineering for chemical and metallurgical industries.

• **Food Fair keeps building**—Food Fair, Inc., 200-unit supermarket chain, says it plans to have 220 operating within a year, and 250 within two years.

• **Arthur G. McKee & Co.**, of Cleveland, will design and construct a $19-million taconite pelletizing installation at the Reserve Mining Co.'s plant at Silver Bay, Minn.

(*Advertisement*)

THREE VIBER MODEL PX external vibrators consolidate ½ to 1 inch slump concrete in 1 to 4 minutes. Table, shown tilted to vertical position for stripping, is capable of handling wall panels up to 39 feet, 6 inches long and 9 feet, 2 inches high.

Vibrators produce high strength lightweight panels and beams in 1 to 4 minutes

FAST, ECONOMICAL, and thorough consolidation of the concrete is accomplished by Viber PX pneumatic external vibrators located on the under side of the casting table. Three vibrators adequately handle the 40 foot table, requiring about 1 minute of operation for 6 inch slabs, and 4 minutes for 3 inch slabs. Steel casting tables under vibration assure smooth concrete.

• **The casting** table is used in a similar manner for beams and columns, requiring approximately 2 or 3 minutes of vibration. Only the top is troweled, other surfaces need no troweling.

• **When removing** a panel, the casting table is tilted, placing the panel in vertical position for stripping. Throughout the curing process and all loading operations, panels are handled vertically, avoiding stresses that would be created by lifting from the horizontal position.

• **Basalt Rock Company, Inc.**, Napa, California, has had many years experience in the manufacture of lightweight concrete products and are leaders in the field of factory assembled pre-cast concrete wall panels, roof slabs, beams and columns.

TABLE, shown here with forms for three beams, is also used for casting beams and columns. Note test samples which are vibrated at the same time.

For further information on Viber's complete line of internal and external vibrators, contact your authorized distributor of Viber Company, 726 South Flower Street, Burbank, Calif., Dept. 67.

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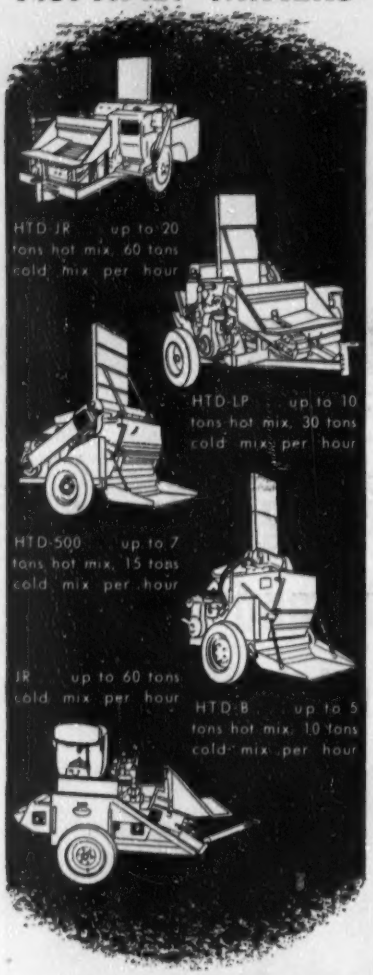
HTD-1R up to 20 tons hot mix, 60 tons cold mix per hour
HTD-LP up to 10 tons hot mix, 30 tons cold mix per hour
HTD-500 up to 7 tons hot mix, 15 tons cold mix per hour
1R up to 60 tons cold mix per hour
HTD-B up to 5 tons hot mix, 10 tons cold mix per hour

. . . for resurfacing and patching in any season

DESIGNED for economy of operation and fast production, the McConnaughay line of Multi-Pug Asphalt Mixers meets every need for most resurfacing as well as all types of pavement patching. Working on location, these mixers provide the exact amounts of materials needed (never too much or too little); and McConnaughay HTD models are the only mixers which effectively remove both moisture and solvents from bituminous mixtures . . . positive assurance that patches and resurfaced areas will set up hard. Write, wire or 'phone for details and specifications.

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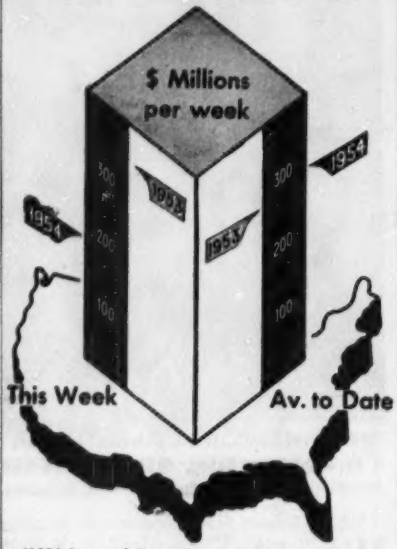
Activity This Week

As reported to ENR (in millions of dollars)



*1954 figures=4-day week.

Amount of contracts let

	This Week	Cumulative 38 Wks 1954	Cumulative 38 Wks 1953	% chge
Federal	$17.1	$900.4	$1,139.0	−21
State and Municipal	135.6	3,635.7	3,601.2	+1
Total public	152.7	4,536.1	4,740.2	−4
Total private	188.2	6,058.2	6,315.0	−4
U. S. total	$340.9	$10,594.3	$11,055.2	−4

Contracts by type of work

Waterworks	$4.7	$164.4	$178.3	−8
Sewerage	6.3	276.6	295.4	−6
Bridges	20.8	381.5	488.8	−22
Highways	69.1	1,401.9	1,301.2	+8
Earthwork, waterways	5.9	204.9	297.9	−31
Buildings:				
Public, excl. hsg.	30.5	1,287.4	1,241.1	+4
Housg., public	3.1	176.4	316.3	−44
Housg., private	101.9	3,154.2	2,681.3	+18
Commercial	16.9	991.9	892.5	+11
Industrial	62.9	1,431.0	2,001.0	−28
Unclassified	18.8	1,124.1	1,361.4	−17
Total	$340.9	$10,594.3	$11,055.2	−4

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)

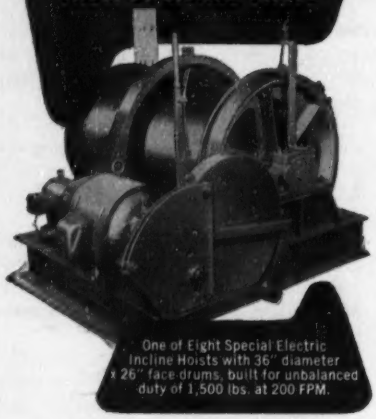
	Week of Sept. 16 1954	Cumulative 37 Wks 1954	% chge '53-'54
Corporate securities	$27.5	$2,088.5	−38
State and municipal:			
All except housing	101.2	3,791.8	+26
Housing	...	91.0	−57
Federal loans	1.1	83.3	−4
Federal aid	...	673.0	−13
Total non-federal	$129.8	$6,727.6	−10
Federal appropriations:			
In U. S.	...	$2,073.3	+32
Outside U. S.	...	33.2	+15
Total new capital	$129.8	$8,834.1	−2

ENR cost and volume indexes, 1954

		Base years = 100 1913	1926	1949
Construction cost	9/16	639.74	307.52	134.11
	9/2†	640.68	307.97	134.31
Building cost	9/16	453.68	245.25	128.96
	9/2†	454.28	245.57	129.13
Volume	Aug.	525	213	152
	July	547	222	158

† Official ENR index for September

Special Hoists
FROM STANDARD PARTS



One of Eight Special Electric Incline Hoists with 36" diameter x 26" face drums, built for unbalanced duty of 1,500 lbs. at 200 FPM.

• By modifying and re-combining our standard parts, Superior-Lidgerwood-Mundy can engineer hoists to meet your specific requirements at the lowest possible cost.

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OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record 330 West 42nd Street New York 36, N. Y.

Bids: September 30, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 30th day of September 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1; N. F. Ronan, Acting District Engineer, 333 Broadway, Albany, N. Y.						
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
DISTRICT No. 3, William Robinson, District Engineer, 301 E. Water Street, Syracuse, N. Y.						
DISTRICT No. 4, E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
DISTRICT No. 5, C. R. Waters, District Engineer, 65 Court Street, Buffalo, N. Y.						
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Westchester, Rockland, Orange, Ulster, Greene, Albany, Schenectady, Montgomery, Herkimer, Oneida, Madison, Onondaga, Cayuga, Seneca, Ontario, Monroe, Genesee, and Erie	T.U.B. 54-2	New York State Thruway—Hudson-Catskill-Mohawk and Ontario Sections (Toll Plazas)	....	Emergency Generator Facilities and Canopy Signs at 40 Interch. or Barriers	$18,000 Plans $10	$320,000
DISTRICTS 1, 2, 8 Rockland, Orange, Ulster, Greene, Albany, Schenectady, Montgomery, Herkimer, Madison, Oneida	T.T.S. 54-2	New York State Thruway—Hudson-Catskill and Mohawk Sections	....	Furnishing and Installing Roadside, Delineators	$8,000 Plans $10	145,000
N.B.—Plans and Proposals for the Above 2 Contracts Will Be Distributed Only From Our Albany and New York City Offices—But Will Be Exhibited for Examination at Our District 1; 2; 3, 4, 5 and 8 Offices Where Work is Located.						
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
Madison and Oneida	M.T. 54-6	New York State Thruway—Mohawk Section—Subs. 1, 2, 3, 4 and 5	6.82	36,000' Cattle Fencing	$1,800 Plans $10	32,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Westchester	FANETC 54-2	New York State Thruway—New England Section—Sub. 2 (North Ave. Drain) Proj. FI-1068(2)	0.49	Drainage and Misc. Work	$25,000 Plans $10	512,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: October 18, 1954

Construction of 36-Inch Diameter Water Supply Main Arlington County, Virginia

Sealed proposals for furnishing all materials and equipment and doing all work required for the construction of a 36-inch diameter water supply main, as described below, will be received by the Purchasing Agent in Room 213, in the Court House Building at Arlington County, Va., until 11:00 A.M., E.S.T on October 18, 1954, and there publicly opened and read immediately thereafter

CONTRACT 2B

CONSTRUCTION OF 36-INCH DIAMETER WATER SUPPLY MAIN AND APPURTENANCES.

1. Location: The work is located in Arlington County, Va. on public streets and on County owned right-of-ways from 30th Street, N. to Lee Highway.
2. Type of Work: The principal items of work include the following: Approximately 8800 lin. ft. of 36" steel or reinforced concrete water pipe together with manholes, 24" diameter cone valves, miscellaneous gate valves, blow-off, air release or inlet valves, connections to existing water mains, etc.
3. Copies of Plans and Specifications, Information For Bidders, Bid Forms and other bidding and contract documents may be examined at the Office of the Chief Engineer of the Water Division, County Court House, Arlington, Va., at Dodge Reports, 900 F. Street, N.W., Washington, D. C. and at the Office of ALEXANDER POTTER ASSOCIATES, CONSULTING ENGINEERS, 50 CHURCH ST., NEW YORK 7, N. Y.
4. Copies of Plans, Specifications and Bidding Documents may be obtained from the Purchasing Agent in Room 213, Court House Bldg., at Arlington, Va. upon Deposit of THIRTY ($30.00) DOLLARS PER SET.

Full refund will be made to actual bidders for return of One (1) Set, in good condition, within two weeks after closing date for receipt of bids: refund for return of all other sets, in good condition. Within the same period, will be Fifty (50%) Percent of the Deposit. No refund will be made for return of documents in poor condition or later than the two week period stipulated.

All bids must be on the form contained in the Contract and Specifications.

Contractors, whether resident or non-resident in Virginia, will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

All bids must be accompanied by a certified check or acceptable bidder's bond, in an amount of not less than Five Per cent (5%) of the amount of the bid, made payable to the Treasurer of Arlington County, as bid security.

The successful bidder will be required to furnish a Performance Bond Conditioned upon the faithful performance of the Contract, and upon payment of all persons supplying labor and furnishing materials on the construction of the work.

No bidder may withdraw his bid within Thirty (30) days after actual date of opening thereof.

The County Board of Arlington County, Virginia, reserves the right to reject any or all bids and to waive any informality in the bids.

ARLINGTON COUNTY, VIRGINIA
By: A. T. Lundberg
County Manager

Sealed Bids will be received at the Department of Highways, Room 400, Central Highways Office Building, 1221 East Broad Street, Richmond, Virginia, Until 10:00 A.M., Monday, October 11, 1954, for the following:

Rt. 200, Proj. 3459 Contract No. 1, Lancaster & Middlesex, 9,985 ft. Substructure Greys Point, Cu. Yds. Conc. 107,839, Lbs. Reinf. Steel 650,000, Lbs. Str. Steel 75,745, Plans $15.00.

Rt. 200, Proj. 3459 Contract No. 2, Lancaster & Middlesex, 9,985 ft. Superstructure Greys Point, Cu. Yds. Conc. 6,292, Lbs. Reinf. Steel 1,450,000, Lbs. Str. Steel 25,566,970, Plans $15.00.

Plans and specifications are on file at the Richmond and Local District Offices. Proposal guaranty shall be certified check or bid bond in the amount specified in the Va. Department of Highways Road & Bridge Specifications, dated April 1, 1954. Bid Bond to be on form furnished by the Virginia Department of Highways. The Commission reserves the right to reject any or all proposals submitted in response to this advertisement, and to waive technicalities as it may deem best for the interest of the State.

OFFICIAL PROPOSALS

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF HIGHWAYS, RICHMOND, VIRGINIA, September 7, 1954. Sealed Bids will be received at the Department of Highways, Room 400, Central Highway Office Building, 1221 E. Broad Street, Richmond, Virginia, until 10:00 A.M., Eastern Standard Time, Friday, October 8, 1954, for the construction of:

Contract No. C-1, Hampton Roads Tunnel, Portal Islands and Dredging.

Estimated Unit Quantities:

2,700,000 Cu. Yds. Dredging; 1,219,600 Cu. Yds. Excavation; 1,650,000 Cu. Yds. Hydraulic Fill; 55,000 Cu. Yds. Rip Rap; 26,500,000 Lbs. Structural Steel; 139,000 Cu. Yds. Concrete; 3,600,000 Lbs. Reinforcing Steel; 373,000 Lbs. Miscellaneous Metals; Electrical Work; Water Service Drainage Piping; Ventilation System and Survey Control Towers. Estimated Length of Tunnel and Portals, Approximately 7,000 Feet. Includes 23 Precast Tube Sections.

Contract No. C-2, North and South Approach Bridges.

Estimated Unit Quantities:

37,800 Cu. Yds. Embankment; 43,000 Lin. Ft. Precast and Prestressed Concrete Piles; 2,500 Lin. Ft. Cast in Place Piles; 63,100 Lin. Ft. Untreated Timber Piles; 21,290 Cu. Yds. Concrete; 896 Prestressed Concrete Beams—50 Ft. Spans; 1,645,000 Lbs. Reinforcing Steel in 50 Ft. Spans, except for prestressed concrete; 418,000 Lbs. Miscellaneous Metals—50 Ft. Spans; 10,495 Cu. Yds. Rip Rap.

Contract C-2—Alternate No. 1, Structural Steel Stringer Construction for 80 Foot Spans.

Estimated Unit Quantities:

3,220 Cu. Yds. Concrete in Deck, Safety Walks, Parapets; 1,150,000 Lbs. Reinforcing Steel; 3,640,000 Lbs. Structural Steel and 6,340 Lbs. Miscellaneous Metals.

Contract C-2—Alternate No. 2, Prestressed Concrete Beam Construction for 80 Foot Spans.

Estimated Unit Quantities:

3,570 Cu. Yds. Concrete in Deck, Safety Walks, Parapets and Diaphragms; 1,065,000 Lbs. Reinforcing Steel, except for Prestressed Concrete; 261 Prestressed Concrete Beams and 131,000 Lbs. Miscellaneous Metals.

If the bidder elects to submit a bid for the combination of Contract No. C-1 and Contract No. C-2, such bid will be rejected if it is not accompanied by separate Bids for each of the two component Contracts.

Prespective bidders will meet the Virginia Department of Highways Representative at the Chamberlin Hotel, 10:00 A.M., Eastern Standard Time, September 14, 1954, to be shown over the location of proposed work. Cost of plans: Tunnel $50.00; Bridges $30.00; Specifications $5.00 each. No refund. Plans and Specifications are on file at the Richmond Office; Director of Ferries, Norfolk, Virginia and Parsons, Brinckerhoff, Hall and MacDonald Engineers, 51 Broadway, New York 6, New York.

Proposal Guaranty: Contract C-1: A certified or cashier's check, made payable to the Commonwealth of Virginia, in the sum of not less than one per cent (1%) of the aggregate amount of the Bid, except that the certified or cashier's check need not exceed One Hundred Thousand Dollars ($100,000.00). In addition to the above, the bidder shall furnish a Proposal Bond made payable to the Commonwealth of Virginia, in an amount of not less than twenty per cent (20%) of the aggregate bid. Such Bond shall be executed on the form furnished by the Department and shall meet all the requirements of the State of Virginia. This Proposal Bond shall be signed by a local resident agent.

Contract C-2: A certified or cashier's check made payable to the Commonwealth of Virginia in the sum of not less than one per cent (1%) of the aggregate amount of the Bid, except that the certified or cashier's check need not exceed Sixty Thousand Dollars ($60,000.00). In addition to the above the bidder shall furnish a Proposal Bond made payable to the Commonwealth of Virginia in an amount of not less than twenty per cent (20%) of the aggregate bid. Such Bond shall be executed on the form furnished by the Department and shall meet all the requirements of the State of Virginia. This Proposal Bond shall be signed by a local resident agent.

Combination Bid—Contracts C-1; C-2: The amount of the certified or cashier's check need not exceed One Hnudred and Fifty Thousand Dollars ($150,000.00). The amount of Bid Bond shall be twenty per cent (20%) of the aggregate amount of the combined bid. Contractors must have on file approved prequalification papers prior to receiving proposals. The Commission reserves the right to reject any or all proposals submitted in response to this advertisement, and to waive technicalities as it may deem best for the interest of the State.

Plans will not be mailed prior to receipt of payment of Cost shown in this advertisement.

OFFICIAL PROPOSALS

Bids: October 19, 1954

New Jersey Turnpike Authority

CONTRACT NO. N-7

Proposals are invited for Contract No. N-7 which involves the fabrication and erection of superstructure steelwork for the viaducts for Ramp E, Ramps F and H, and Ramp G, and a portion of the Newark Bay-Hudson County Extension on viaduct, all at the Newark Airport Interchange of the New Jersey Turnpike, in the City of Newark, Essex County, in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:

Structural Steel	8,650,000 Lbs.
Furnishing Metal Railing	6,440 Lin. Ft.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'clock Eastern Standard Time on the morning of October 19, 1954, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after September 23, 1954, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman
September 23, 1954

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4253) will be received at Superior, Nebraska, until October 21, 1954, for furnishing labor and materials for Lovewell Dam, Bostwick Division, Nebraska-Kansas, Missouri River Basin Project. Location: Near Lovewell, Nebraska. Principal items are: 3,500,000 cu. yds. excavation; 3,000,000 cu. yds. embankment; 35,200 cu. yds. riprap; 8,535 lin. ft. furnishing and laying 4 inch to 18 inch sewer pipe; 17,000 barrels furnishing and handling cement; 1,440,000 lbs. furnishing and placing reinforcement bars; 12,200 cu. yds. concrete; installing 227,000 lbs. of gates, hoists and other metalwork; and other work. Completion time 800 days. For particulars, address Bureau of Reclamation, Superior, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4252) will be received at Ephrata, Washington, until October 19, 1954, for furnishing labor and materials for: Mesa Pumping Plant and Canal Lateral PE 38-9B, station 0+50 to station 23+50, Block 14, Columbia Basin Project. Location approximately 4 miles southwest of Mesa, Washington. Principal items are 23,500 cu. yds. excavation for laterals, structures, and borrow; 585 cu. yds. concrete; 795 lin. ft. furnishing and laying 66-inch diameter precast concrete pressure pipe; 55,000 pounds erecting structural steel framing; 88,000 pounds installing four horizontal centrifugal type pumping units; 11,220 lin. ft. furnishing and installing various sizes conductor; and other work. Completion time 650 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: October 13, 1954

City of Worcester Department of Public Works Erection of Steel Reservoirs

Sealed bids for erecting Steel Reservoirs will be received at the office of City Manager, Room 306, City Hall, Worcester 8, Mass., until 10 a.m. Eastern Daylight Saving Time on October 13, 1954, and at that time publicly opened and read. The work includes furnishing and erecting two 90-ft. diameter steel reservoirs with capacity of 1.2 mil. gal. each.

Contract documents may be examined at the Office of the Commissioner of Public Works, 20 East Worcester Street, Worcester, Mass., and examined and obtained at the office of Metcalf & Eddy, Engineers, 1300 Statler Building, Boston, Mass. Ten dollar deposit required. A surety company bond securing faithful performance and covering the provisions of General Laws Chapter 149-829 will be required. Proposal guarantee of a $6,000 certified check will be required with the bid. Minimum wage rates under C461 of Acts of 1935 have been determined. The Contractor will be bound by the applicable statutory provisions of law. The location of this work may be inspected. The City reserves the right to reject any or all bids. Mark envelopes: "Proposal for Steel Reservoirs on Indian Hill Contract 8".

CITY OF WORCESTER
By
Earl R. Perry
Commissioner of Public Works

Bids: Oct. 14, 1954

New Jersey Turnpike Authority

CONTRACT NO. N-12

Proposals are invited for Contract No. N-12 which involves the construction of four (4) bridge structures, one retaining wall, and other incidental work in the Cities of Bayonne and Jersey City, Hudson County, New Jersey, all in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:

Open Foundation Excavation	7,800 Cu. Yds.
Treated Timber Piles	9,400 Lin. Ft.
Steel Piles	1,600 Lin. Ft.
Concrete	9,000 Cu. Yds.
Reinforcement steel	760,000 Lbs.
Structural Steel	2,150,000 Lbs.
Metal Railing	1,200 Lin. Ft.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock Eastern Standard Time on the morning of October 14, 1954, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after September 20, 1954, at the office of the Authority and at the office of the Consulting Engineer, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned and payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman
September 16, 1954

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

OFFICIAL PROPOSALS

Bids: October 5, 1954

Hangar No. 9—Surcharge Fill

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-430.001

Sealed proposals for the installation of surcharge fill for Hangar No. 9 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, October 5, 1954, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 719, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, September 23, 1954

Bids: Oct. 14, 1954

Delaware River Port Authority
Administration Building
Camden, New Jersey

TRUSS SPANS SUBSTRUCTURE,
GLOUCESTER ANCHORAGE TO
NEWTON CREEK

CONTRACT NO. G-1

Sealed bids will be received for Truss Spans Substructure from Gloucester Anchorage to Newton Creek, for new Bridge between Packer Avenue, Philadelphia, Pennsylvania, and Gloucester, New Jersey, known as Contract No. G-1, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 2:00 P.M., (Eastern Standard Time), October 14, 1954 at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $50,000.00 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
Executive Director

Bids: October 7, 1954

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m., Eastern Standard Time, the 7th day of October 1954, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of structures and the grading, drainage and paving of the Turnpike Section 35-F, part of the Northeastern Extension of the Pennsylvania Turnpike in Salford Township, Montgomery County, West Rockhill and Milford Townships, Bucks County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point approximately 179 feet southeast of the center line of existing Township Road 451 at Turnpike station 977+00 in Salford Township, Montgomery County; thence in a northwesterly direction 26,722.5 feet to Turnpike station 237+50, at a point approximately 4,238 feet northwest of the centerline of Legislative Route 09109 in Milford Township, Bucks County, a distance of approximately 5.06 miles.

The approximate quantities of the principal items are as follows:

Class I Excavation	847,663 cubic yards
Class II Excavation	12,546 cubic yards
Class 2A Excavation	3,085 cubic yards
Borrow Excavation	167,823 cubic yards
Special Subgrade	216,662 square yards
Reinforced Concrete Pavement	138,969 square yards
Class A Concrete	3,432 cubic yards
Class B Concrete	3,549 cubic yards
Plain Steel Bars	716,967 pounds
Fabricated Structural Steel	1,723,060 pounds
Median Divider	25,181 lineal feet

Copies of plans, specifications and other contract documents including cross-sections, are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on September 23, 1954. Plans, specifications, cross-sections and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50) dollars per set.

Plans and contract documents, for this section exclusive of cross-sections and specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE
COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
9 September 1954

Bids: October 13, 1954

Indiana Toll Road Commission
309 W. Washington Street
Old Trails Building
Indianapolis, Indiana

NOTICE TO BIDDERS
Contract C-20
Contract C-21
Contract C-20 and C-21

Sealed proposals will be received by the Indiana Toll Road Commission at or before 10:00 A.M., Central Standard Time, October 13, 1954 for the performance of each of the contracts enumerated above.

Contract No. C-20

The grading, drainage, structures and paving of approximately 3.1 miles in Construction Section C-20 of the Indiana East-West Toll Road beginning at a point about 4,060 feet west of U. S. Route 35 (Indiana 29) at Toll Road Centerline Station 2674+91 in LaPorte County and extending eastwardly to a point about 4,666 feet east of Indiana Route 39 at Toll Road Centerline Station 2835+00 in LaPorte County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	462,000 Cu. Yds.
Borrow	409,000 Cu. Yds.
10" Reinforced Concrete Pavement	103,000 Sq. Yds.
Culvert Pipes and Underdrains	12,100 Lin. Ft.
Cast-in-Place Concrete Piling	14,500 Lin. Ft.
Concrete for Structures	3,780 Cu. Yds.
Reinforcing Steel	615,400 Lbs.
Fabricated Structural Steel	1,238,000 Lbs.

Contract C-21

The grading, drainage, structures and paving of approximately 3.5 miles in Construction Section C-21 of the Indiana East-West Toll Road beginning at a point about 4,666 feet east of Indiana Route 39 at Toll Road Centerline Station 2835+00 in LaPorte County and extending eastwardly to a point about 413 feet west of St. John's Road at Toll Road Centerline Station 3020+00 in LaPorte County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	816,000 Cu. Yds.
10" Reinforced Concrete Pavement	98,000 Sq. Yds.
Culvert Pipes and Underdrains	9,764 Lin. Ft.
Cast-in-Place Concrete Piling	11,500 Lin. Ft.
Concrete for Structures	3,430 Cu. Yds.
Reinforcing Steel	502,400 Lbs.
Fabricated Structural Steel	843,000 Lbs.

The work covered by Contract C-20 and C-21, which covers a combination of Construction Sections C-20 and C-21, is the construction as above described for the individual Construction Sections, taken together.

Copies of the Plans, Specifications and Proposal Forms for said Contracts are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road ..... $ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section $25.00

Informational Drawings

Cross-Sections, per set, per Construction Section $25.00
Soil Plan and Profiles, per set, per Construction Section ..... $ 5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) percent of the total price bid per Construction Section covered by the Contract. If the Bidder shall tender bids for two or more Contracts which include the same Construction Section, the Construction Section thus duplicated in the bidding need be counted only once in determining the total amount of the Proposal Guaranty. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 10:00 A.M., Central Standard Time, October 13, 1954, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger
Chairman

Charles W. Keating
Secretary-Treasurer

OFFICIAL PROPOSALS

Bids: October 5, 1954

State of New Jersey

STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

WHITE HORSE-MERCERVILLE ROAD
Construction of White Horse-Mercerville Road, from Maple Shade School to Olden Avenue, Paving, in Hamilton Township, Mercer County, Federal Aid Secondary Project No. S-170(6). Length 0.508 miles. The principal items of work are:

Estimated:
7,500 cu. yds. Excavation—Earth
12,200 sq. yds. Macadam Base Course
12,200 sq. yds. Modified Pen. Macadam
27,200 gals. Bituminous Material
2,030 tons Bituminous Concrete
5,000 lin. ft. Concrete Curb
2,530 sq. yds. Concrete Sidewalk

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, October 5, 1954, at TEN o'clock (10:00 A.M., EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of Ten Dollars ($10.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: October 13, 1954

City of Worcester Department of Public Works Laying Water Supply Main and Appurtenant Work

Sealed bids for laying Water Supply Main and Appurtenant Work will be received at the office of City Manager, Room 306, City Hall, Worcester 8, Mass., until 10 a.m. Eastern Daylight Saving time on October 13, 1954 and at that time publicly opened and read. The work includes about 4,500 lin. ft. of 24-in. cast-iron pipe, and 1,015 lin. ft. of 16-in. cast-iron pipe.

Drawings and contract documents may be examined at the Office of the Commissioner of Public Works, 20 East Worcester Street, Worcester, Mass., and examined and obtained at the office of Metcalf & Eddy, Engineers, 1300 Statler Building, Boston, Mass., Ten dollar deposit required. A surety company bond securing faithful performance and covering the provisions of General Laws Chapter 149-829 will be required. Proposal guarantee of a $10,000 certified check will be required with the bid. Minimum wage rates under C461 of Acts of 1935 have been determined. The Contractor will be bound by the applicable statutory provisions of law. The location of this work may be inspected. The City reserves the right to reject any or all bids. Mark envelopes: "Proposal for Laying Water Supply Main Contract 4."

CITY OF WORCESTER
By
Earl R. Perry
Commissioner of Public Works

Bids: October 18, 1954

Construction Of 6.0 M.G. Water Storage Reservoir And Appurtenances

ARLINGTON COUNTY, VIRGINIA

Sealed proposals for furnishing all materials and equipment and doing all work required for the construction of 6.0 Million Gallon Water Storage Reservoir And Appurtenances, as described below, will be received by the Purchasing Agent in Room 213, in the Court House Bldg. at Arlington County, Va. until 11:00 A.M., E.S.T. on October 18, 1954, and there publicly opened and read immediately thereafter.

CONTRACT 3

CONSTRUCTION OF 6.0 M.G. WATER STORAGE RESERVOIR AND APPURTENANCES.

LOCATION: The work is located in Arlington County, Virginia, on County owned land, at N. Powhattan and N. Rockingham Streets.

TYPE OF WORK: A reinforced concrete covered water storage reservoir approximately 180 ft. by 248 ft. by 22 ft. deep, with a flat slab roof supported on spirally reinforced columns. Also, control chambers and pertinent piping.

Copies of Plans and Specifications, Information For Bidders, Bid Forms and other bidding and contract documents may be examined at the Office of the Chief Engineer of the Water Division, County Court House, Arlington, Va., at Dodge Reports, 900 F. St. N.W., Washington, D. C. and at the Office of ALEXANDER POTTER ASSOCIATES, CONSULTING ENGINEERS, 50 CHURCH ST., NEW YORK 7, N. Y.

Copies of Plans, Specifications and Bidding Documents may be obtained from the Purchasing Agent in Room 213, Court House Bldg., at Arlington, Va. upon Deposit of THIRTY ($30.00) DOLLARS PER SET.

Full refund will be made to actual bidders for return of One (1) Set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be Fifty (50%) Percent of the Deposit. No refund will be made for return of documents in poor condition or later than the two week period stipulated. All bids must be on the form contained in the Contract and Specifications.

Contractors, whether resident or non-resident in Virginia, will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

All bids must be accompanied by a certified check or acceptable bidder's bond in an amount of not less than Five Percent (5%) of the amount of the bid, made payable to the Treasurer of Arlington County, as bid security.

The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the Contract, and upon payment of all persons supplying labor and furnishing materials on the construction of the work.

No bidder may withdraw his bid within Thirty (30) days after actual date of opening thereof.

The County Board of Arlington County, Virginia, reserves the right to reject any or all bids and to waive any informality in the bids.

ARLINGTON COUNTY, VIRGINIA
By: A. T. Lundberg
County Manager

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

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ESTIMATOR: FOR Highway and Railroad Bridge Construction and Restoration in Southeast Ohio and adjoining states. Must have supervisory background and be cost conscious. Thorough experience essential. State experience, references, personal information and salary expected. Good chance for the right person. Reply P-3847, Engineering News-Record.

IRRIGATION ENGINEERS with agricultural extension experience, engineers experienced in design and construction small irrigation works. Project located in Middle East. Contract one year with option of renewal for second year. Submit resume, age, education, experience, references, present salary requirements and availability. P-3857, Engineering News-Record.

SANITARY ENGINEERS with experience in design of water treatment plant and distribution systems, concrete design and estimates. Also—draftsmen, survey chief of party, instrument men. Location Latin America and Middle East. Submit qualifications, education, experience, references and minimum salary required. P-3858, Engineering News-Record.

JR. CIVIL Engineers, Instrumentmen, Map Draftsmen needed for expanding Highway Program in Nevada. State Personnel Department, Carson City, Nev.

ENGINEERS — MUNICIPAL Experience: The City of Las Vegas, Nevada, due to rapid expansion has permanent openings for Engineers and Draftsmen experienced in municipal design. Write to City Engineer, giving background, samples of work and salary range.

STRUCTURAL STEEL Detailers and Checkers by Fabricators in Western Canada required for all types of buildings, bridges, etc., also Reinforcing Concrete detailers. Good salary and conditions for experienced man. P-3825, Engineering News-Record.

WANTED: EXPERIENCED concrete reinforcing bar designer, checker, detailer. Salary based on experience and ability. Employee benefits. Southern Engineering Company, Box 1087, Charlotte 1, N. C.

ENGINEERS, COMPETENT and experienced in design and supervision of construction and as resident engineers on water works, sewer systems, sewage and water treatment. State experience, when available, salary requirements, references. P-3452, Engineering News-Record.

SUPT. FOR Gen'l Contractor. Must be familiar with concrete construction, brickwork, etc. and capable of supervising subcontractors work. State experience, when available and salary requirements. P-3934, Engineering News-Record.

DRAFTSMAN-PARTY Chief for engineer land surveyor. Must be either graduate or thoroughly familiar with topo-mapping and general surveying. No drinkers. State age, education, experience, salary desired, when available. Write Box 464, Bessemer, Alabama.

ARCHITECTURAL DRAFTSMAN and Designer wanted with 4 years' minimum experience in planning school and church buildings. Good pay and permanent position for man who can assume responsibility. Write P. O. Box 296, Lancaster, Ohio giving qualifications, experience and references.

SALESMAN STRUCTURAL Steel — for established Eastern Penna. Fabricator. Must be top grade man with proven ability and broad experience. Give full particulars in reply to P-3891, Engineering News-Record.

(Continued on the following page)

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Write for application blank. Your reply will be promptly acknowledged and will be held confidential.

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P-3879, Engineering News-Record
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Arabian American Oil Company

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P-3945, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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400 West Madison Chicago 6, Ill.

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Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

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Address reply to Box 429, Perth Amboy, New Jersey

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For Heavy Construction Equipment
In Northern New Jersey
Must know Territory

SW-3880, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT
(Continued from preceding page)

SALES ENGINEER a well-established Eastern steel fabricating plant with expansion potentialities requires a manager of sales. Here is a real opportunity for a man with enterprise and proven ability. Reply with full particulars as to experience and personal data. P-3915, Engineering News-Record.

CHIEF ENGINEER for Eastern steel fabrication plant. Must be experienced in design, steel plate fabrication, ASME codes and complete operation of engineering department. Please give full details with salary requirements in first letter. P-3916, Engineering News-Record.

EXPERIENCED ESTIMATOR, Graduate Engineer preferred, capable of preparing estimates, pricing, purchasing, subcontract negotiation and job management. Permanent position with well established and progressive general contractor located in Northwestern Ohio specializing in industrial and commercial buildings, public works and bridges. Send complete history including education, past experience, references and salary expected. P-3958, Engineering News-Record.

WANTED BY new construction organization with established background, an estimator desiring to better himself and grow with company. Applicant must be experienced in building construction and capable of taking-off large jobs. Give full particulars to P-3950, Engineering News-Record.

SALES AND Development Engineer (C.E.) interested in opportunity to promote new developments in light weight concrete and act as technical representative of chemical manufacturer—to call on engineers, architects, concrete products manufacturers. P-3952, Engineering News-Record.

POSITIONS OPEN in estimating and purchasing departments of rapidly growing construction corporation in northern New York State. Full detailed information requested in first letter. P-3994, Engineering News-Record.

CIVIL ENGINEERS to do bridge design work. Beginning salary $5250 per year for engineering graduates with two years of experience; with lesser experience but with M.S. degree, $4990; with B.S. degree, $4660. Write O. B. Blix, City Hall, Milwaukee.

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PW-3903, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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COST AND Office Engineer (27) 3 years steam power plants, 3 years AEC, seeks construction job in U. S. PW-3833, Engineering News-Record.

CHIEF ESTIMATOR—Project Manager—Age 50—Experienced in Field Control, estimating, cost control, purchasing, sub-contracts—Currently employed but wanting other connection preferably South or Southwest. PW-3930, Engineering News-Record.

20 YEARS experience with earth moving equipment, shovel operator, general foreman, and super. of equipment. PW-3931, Engineering News-Record.

ENGINEER, 31 BSCE 4 years field supervision experience, building and heavy construction. PW-3892, Engineering News-Record.

OFFICE MANAGER familiar all phases construction contracting business. Many years experience large projects Branch Offices Latin America. Speaks, reads, writes Spanish. Available immediately. PW-3893, Engineering News-Record.

PROJECT MANAGER — Superintendent, 25 years experience on all types buildings and foundations. Engineering education. Metropolitan area. Available one month. PW-4006, Engineering News-Record.

ASST. SUPT. or General Foreman 25 yrs experience in various lines heavy construction. PW-3995, Engineering News-Record.

CIVIL ENGINEER, Graduate, registered, 37, single. 5 years highway surveying and design. 2½ yrs. structural drafting and design. Speak Spanish. Latin American assignment desired. PW-3999, Engineering News-Record.

DESIGN ENGINEER, 51, experienced Mechanical Designer on Piping systems, processing & material handling equipment, mechanical installations and structures. Will relocate. PW-4000, Engineering News-Record.

C. E.—2 years experience Heavy Industrial construction, including layout and labor supervision. Cost conscious hustler. Excellent references available. Married, 27, desire permanent location. PW-3948, Engineering News-Record.

REGISTERED CIVIL Engineer now in private professional practice seeks position of responsibility. Age 35, 15 yrs. experience airports, highway, general municipal. PW-3949, Engineering News-Record.

CIVIL STRUCTURAL Engineer age 32, B.S. Degree, registered professional engineer. 8 yrs. varied experience in building, industrial and bridge structures including 1 yr. construction supervision and 2 yrs. as chief design engineer of small consulting firm. Sound administrative and engineering ability. Desires position with reputable manufacturer or fabricator where past experience would be of value and future is offered. Mid Atlantic States preferred. PW-3982, Engineering News-Record.

DRAFTSMAN-CHIEF or Asst. Chief. 11 yrs. exp. civil, piping, struct. and mech. Age 31. Any location considered. PW-3985, Engineering News-Record.

CIVIL-STRUCTURAL Engineer, P.E., N.Y., N.J., & Wash.; thirty years diversified experience; bridges, building construction, industrial plants; planning, designs, specifications, supervision., office, field. Desires permanent connection of responsibility with growing concern; domestic or abroad. PW-3974, Engineering News-Record.

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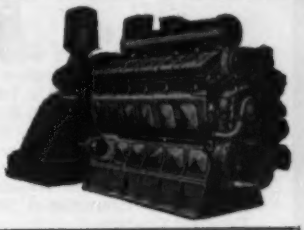

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1000	General Motors	16-567B	1440	720	300	General Motors	8-268A	450	1200
750	General Motors	12-567	1080	720	200	General Motors	8-268A	350	900
700	Worthington	EE-8	1000	327	150	Worthington	CC-4	225	450
500	General Motors	8-278A	750	720	150	Ingersoll-Rand	8-4	225	600
500	General Motors	8-567	720	720	150	Buckeye	60	240	600
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NEW PRODUCTS

Engine starting aid gets them going in less than 30 seconds at 40 below

Out of the Sinclair Research Center at Harvey, Ill., has come a development that could mean the difference between profit and loss for many contractors operating diesel or gasoline-powered equipment this winter. The device is the Ampco-Sinclair engine starter—a starting fluid applicator that reportedly provides positive starts in less than 30 sec at —40 F with safety to both engine and operator.

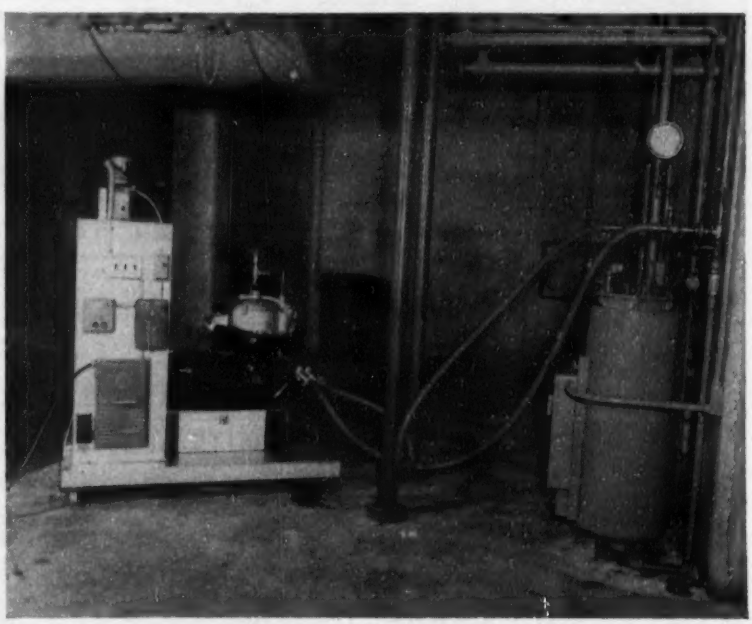
Basically, the starting aid is a mixing device. Starting fluid is combined with compressed air and jetted into the intake manifold. The starting fluid is a combination of ether and other chemicals and aids in ignition of standard fuels.

However, since the starting fluid is so highly volatile and inflammable, certain precautions are necessary in its handling.

The fluid-containing portions of the starter are therefore divided in two parts. The main reservoir or fluid supply chamber accepts one sealed 10-oz can of fluid. This is placed in the chamber in an inverted position, and as the chamber cap is screwed into place a piercing device punctures the aluminum seal at the top of the can.

The second part of the fluid supply is the fluid measurement chamber, a small pyrex bowl that is filled by opening a valve between it and the main reservoir. An automatic shut-off prevents the chamber from being overfilled. The visible fluid supply enables the operator to gauge the proper amount of fuel required to start the engine and also to avoid harmful detonation.

(*Continued on page 90*)

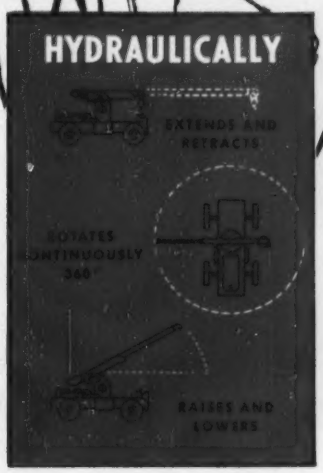


Portable seperator reclaims lube oil

Sizeable savings from extended engine life and reduced downtime are reported from the use of a portable separator for purifying oil installed at the Bay Park sewage treatment plant, Rockaway, L. I. Big feature of the centrifuge separator is its portability. Since the unit can be moved at will and linked into the lube lines while the engine is running, downtime is considerably reduced. The separator used has a capacity of 130 gph when handling fuel oil and averages 65 gph of the heavier lube oils. The present sludge capacity of the bowl which turns at approximately 10,000 rpm is 0.22 gal or about 2 lb. Centrico Inc., Englewood, N. J.

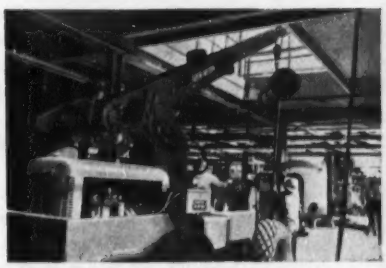
AUSTIN-WESTERN HYDRAULIC CRANE

That's what I call a LIVE BOOM

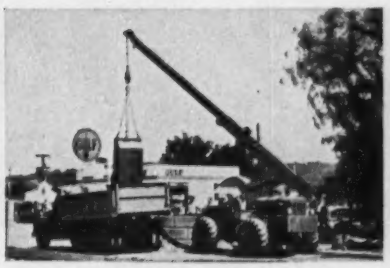


. . . as you will agree, when you see this most versatile of all mobile cranes in action. During the entire pickup—carry—placement cycle, the boom is completely "alive," responds instantly to the operator's every demand; gets the job done with maximum ease and speed.

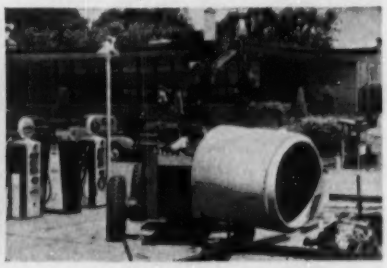
All tractor models have 4-wheel steer for maneuvering in close quarters; some have 4-wheel drive for maximum tractive effort. Boom lengths range from 18 to 35 feet. Outriggers may be had, if wanted. Usefulness is increased by such optional equipment as magnet and winch, and either clamshell or orange peel bucket.



CLOSE QUARTERS. Telescopic boom reaches up and over in an oil refinery.



SEWER EXCAVATION. Six men and one Hydraulic Crane replace 27 men and three slow-moving cranes.



SETTING PIPE. One of many uses found for the Hydraulic Crane by this contractor.

On jobs like these, and dozens more, the Hydraulic Crane is making materials handling history.

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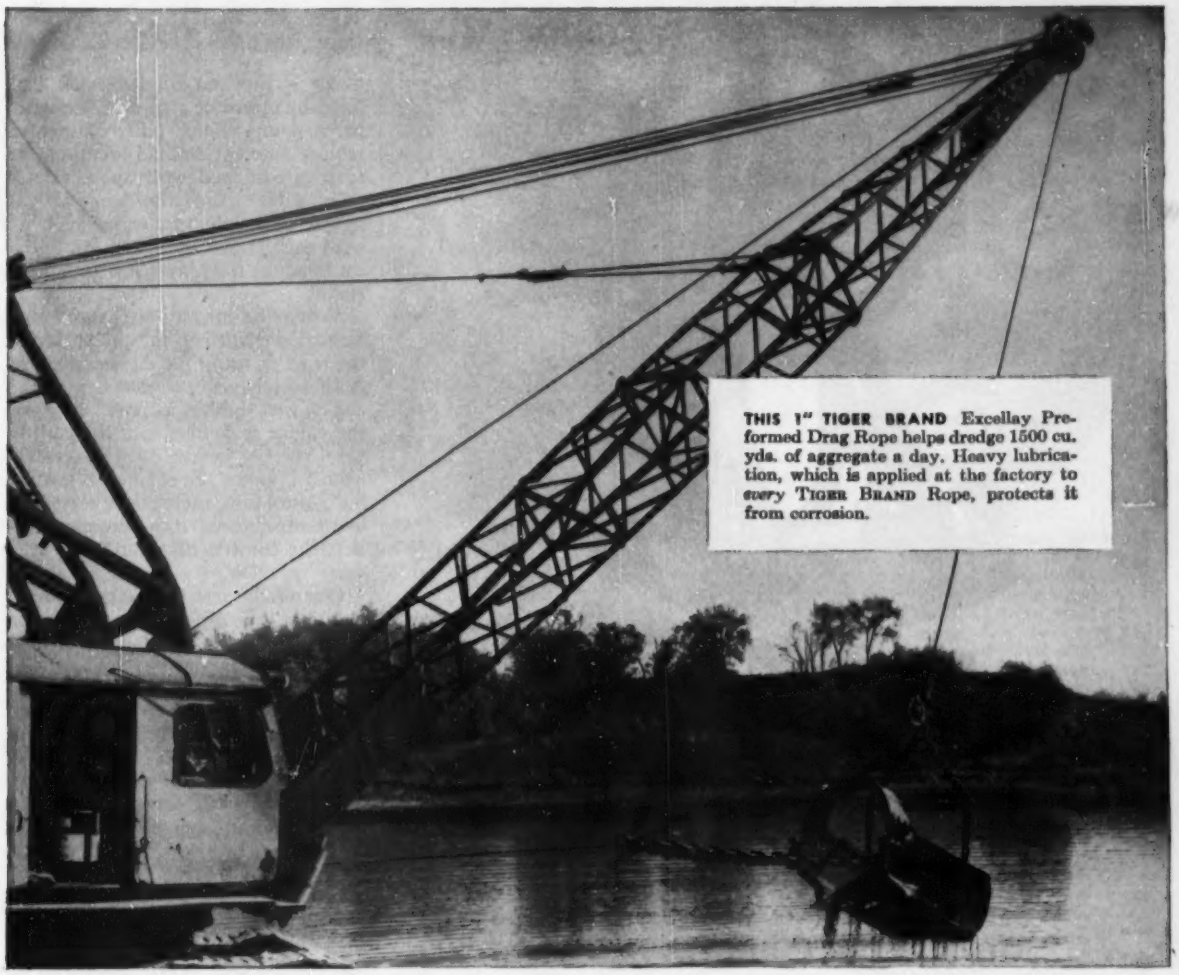
says C. G. TUGEND, FREDERICKTOWN SAND & GRAVEL CO.

EVERY ROPE on all 5 excavating and materials handling machines at Fredericktown Sand & Gravel Co. is TIGER BRAND. This important stone processing company consults frequently with American Wire Rope Engineers and follows their recommendations to get the best possible service from each rope.

● If you want to know how good TIGER BRAND Rope is, just talk to C. G. Tugend, Secretary-Treasurer and General Manager of Fredericktown Sand & Gravel Co. in Fredericktown, Ohio. Here's what Mr. Tugend says about TIGER BRAND:

"We have some of the toughest operating conditions I've ever seen for wire rope. We're dredging in corrosive river water that is 7% sodium sulfate. On top of that, our drag ropes have to scrape through hard glacial rock

The Right Wire Rope will do the trick!



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"Since that costly experiment, we've been using TIGER BRAND Rope *exclusively*. It has never shown a tendency to kink; and it is extremely pliable and strong. It has never given one bit of trouble."

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Please send me, without obligation, a copy of your helpful wire rope recommendation book, "The Right Rope for the Job."

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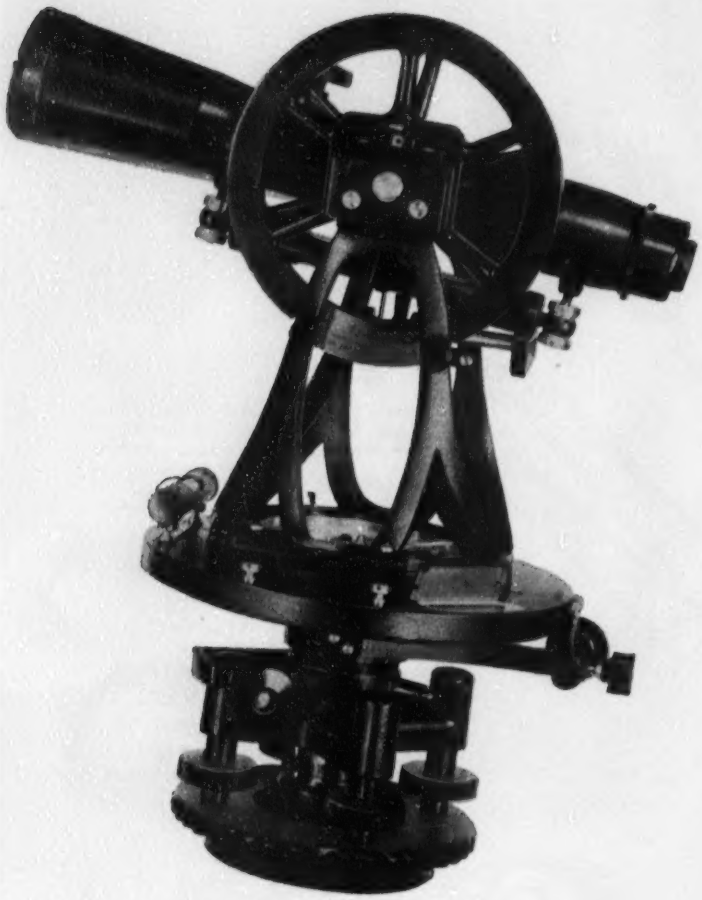

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NEW PRODUCTS

Air is supplied from a small tank filled by means of a specially designed hand pump. Since different engines require different air-fluid mixtures, the tank is equipped with an adjustable relief valve. Also, the pump is designed to supply approximately 2 psi with each stroke to enable the operator to adjust the proper mixture to the engine.

When the measuring chamber and air tank are filled to the proper levels, the unit is ready for engine starting. A safety valve is opened and with the engine fuel throttle in "run" position, the engine is cranked and the control valve on the device opened simultaneously. When the engine has started, the control valve is closed. In extremely low temperatures, it is recommended that the throttle be set at the "wide open" position.

One of the features that is pointed out on the Ampco-Sinclair engine starter is what is called the "tail" effect. After the control valve is closed there is enough residual pressure in the fluid measurement chamber to continue forcing a fluid-air mixture through the nozzle. It is said that this gives a fluid-air "tail" of 5 to 15 seconds duration that serves to keep the engine running once it has been started.

The starting aid is expected to be priced at $50 for a standard installation, that is, engines of 50 to 1,000 cu. in. displacement. Portable starters that can be used to start a number of engines and starters for larger engines will be priced slightly higher.

Sinclair starting fluid is priced at $1.00 for the 10-oz can, which provides 20 to 60 starts. This means that engines can be started for less than 5¢ a start.

All of the valves on the starting aid are designed so that they can be manipulated by gloved hands. The pump handle is similarly designed and will be neoprene-coated to prevent adhesion should it be touched by an ungloved hand in extreme cold or subzero temperatures.

The control valve is spring-loaded so that it cannot be left open. Also, the piercing mechanism in the fluid supply tank will function if the can of fluid is inadvertently inserted bottom-down.

The device is the result of the combined efforts of the Automotive and Marine Products Corp. of Boston and Sinclair. Sales will be made through regular distributors as well as the suppliers of Sinclair products. SINCLAIR REFINING CO., TECHNICAL SERVICE DIV., 600 FIFTH AVE., NEW YORK 20, N. Y.

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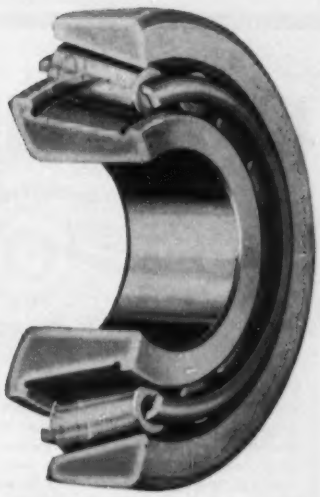

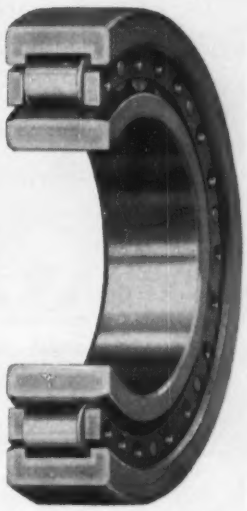

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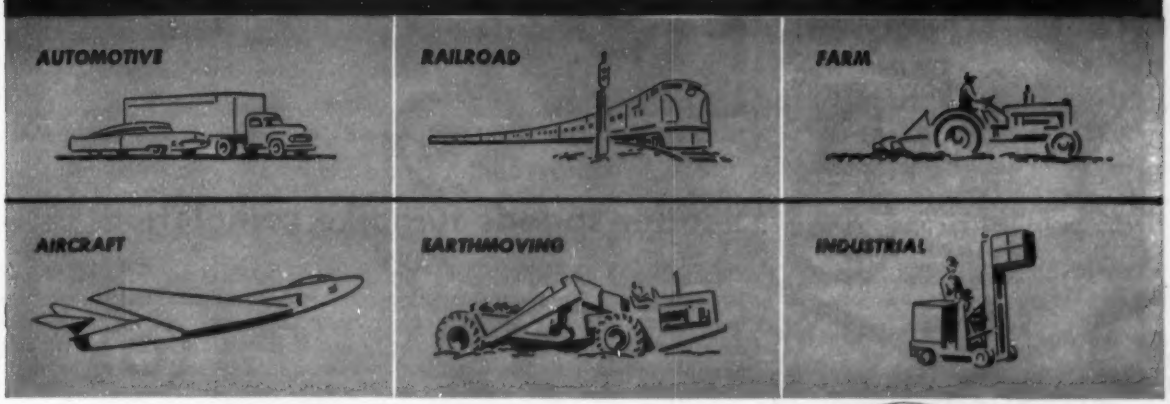

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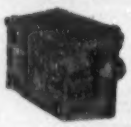
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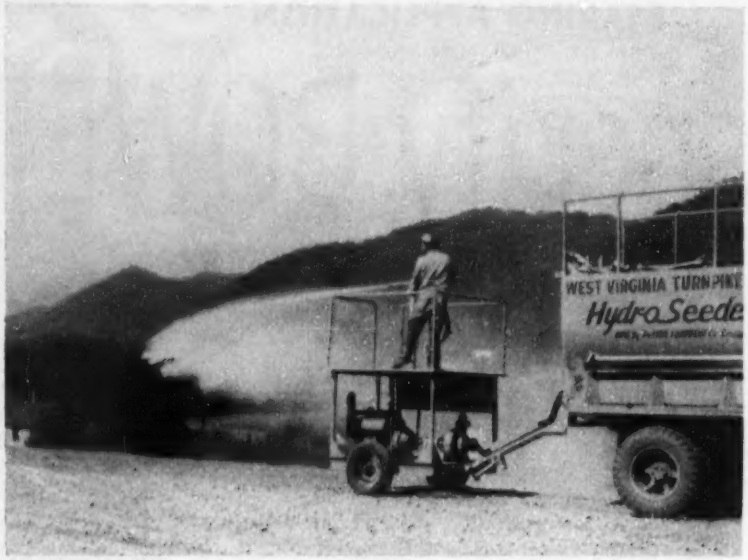
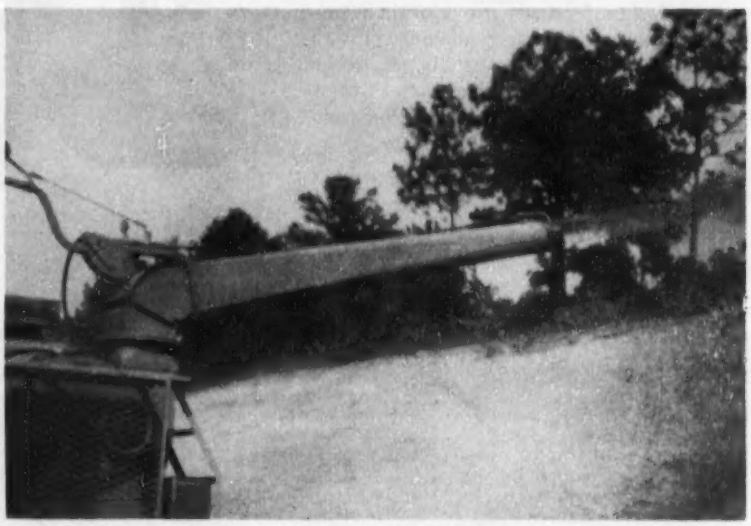


HYDROSEEDER spreads lime-seed-fertilizer slurry along roadway. Since spreader is independent, two tank units can speed distribution by making operation continuous.



IMPROVED MULCH SPREADER reportedly eliminates lumps even when working with wet straw.

Seeder speeds turnpike completion

Landscaping operations along the West Virginia Turnpike are being hastened through the use of newly-developed seeding equipment. The multiple purpose unit distributes seed-lime-fertilizer mixtures then is convertible to mulch, adhesive, fertilizer and topsoil spreading. Another attachment allows the unit tc be used in misting with insect and weed control solutions.

Basically the equipment is an improved version of the Finn Mulch Spreader (ENR Oct. 15, 1953, p. 75). Horsepower has been boosted over that of the original model and the beater box has been redesigned so that, it is said, the straw pattern has been improved and lumps are eliminated—even with wet material. A new type of head provides 65 deg of vertical movement and 360-deg. horizontal coverage. Further, the discharge pipe head has been lined with rubber to resist abrasion.

The Hydroseeder is a brand new development and consists of a spread-

(*Continued on page 94*)

"No Equipment Failure...
No Loss of Time...
IN FIVE YEARS!"
"Haul 15 Tons 136 Miles Daily
Without a Gas-Up Stop"
2 Years Old!...16,280 Hours!...No Repairs!
...Oil Consumption Unchanged!

Construction men report on equipment using Cities Service gasolene, oils, greases!

Above are excerpts of actual reports received from several different types of construction operations. They have been placed together on one page because they demonstrate very clearly that testimonials of unexcelled performance are the *usual* rather than the unusual when using Cities Service gasolene, oils, and greases. If there were room, many more could be added.

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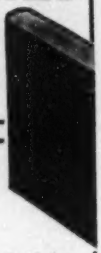
A complete guide to better use of compressed air power, covering the whole range of compressed-air equipment and systems—how they're planned, selected, tested, operated, and maintained. Every important type of apparatus is covered—pneumatic tools, rock drills, compressors, piping, even air distribution systems. **Second Edition** features data on centrifugal compressors, new pneumatic tools, and compressor installation methods. **By the Compressed Air and Gas Institute. Second Edition. 383 pp., 6 x 9, 71 tables, 355 illus., $6.00**



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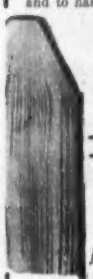

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Here in compact, accessible form are the many tables and other reference data required by the practicing hydraulics engineer who wants to speed his computations without losing accuracy. Covers every phase of common practice as well as many special problems. Condenses and simplifies rules and formulas. **Fourth Edition** includes information on fluids other than water, orifices and sluice gates, weirs, pipes, uniform and non-uniform flow in open channels, etc. **By H. W. King. Revised by E. F. Brater, Prof. of Hyd. Engrng. Univ. of Mich. Fourth Edition, 567 pp., 133 tables, 165 illus., $6.00**

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NEW PRODUCTS

ing unit and a 1,250-gal tank equipped with agitators. The seeder is a trailed unit and the tank is mountable on any type of dump or flat bed truck. Used in conjunction with the spreading unit, the tank permits long periods of operation and, since it is an independent unit, can be uncoupled from the spreader to be hauled back to the storage tank for refilling. Use of a second tank can then permit continuous operation of the spreading equipment.

The tank is constructed of ¼-in. plate and measures 4 ft high. The top is flat and made of skid-proof material —a guard rail adds further protection. The agitators are full length and located near the bottom of the tank; power is supplied by a Briggs and Stratton gas engine.

The seeder unit couples onto the tank and can be arranged to be towed by any truck. A 36 hp electric-starting Wisconsin supplies power to the pumping unit, which is Gardner-Denver open style impeller with a ⅜-in. clearance.

The Hydroseeder has a capacity of 100 gpm at 100 psi. A 233-ft head through a ⅛-in. nozzle provides a range of 120 ft from the spout. The slurry can be spotted through a vertical angle from 20 to 90 deg above horizontal and a 360 deg horizontally. THE FINN EQUIPMENT CO., 2525 DUCK CREEK RD., CINCINNATI 8, OHIO.

Pavement cutter sports improved flushing system

A new pavement cutting machine is powered by a 26.8 Kohler gas engine for fast operation using diamond blades in diameter sizes of 12 to 22 in.

A cooling and flushing system has been designed that reportedly removes all loose abrasives in the cut instantly. This is accomplished by water being carried down to both sides of the blade by twin steel tubes, where it is jetted into the blade collar. Through centrifugal action, the water is then picked up and forced through slanted holes, spaced at ¼ in. intervals, onto the blade and into the cut.

Other features of the concrete cutter are depth of cut control, durable welded metal frame, heavy duty front shaft, hydraulic system which balances the machine's 1,000-lb weight for easier maneuverability, heavy-duty semi-pneumatic tires, 6-v self-starting battery and a front pointer or guide which automatically maintains cutting position. WINDSOR MACHINERY CORP., 61 AIRPORT RD., HARTFORD, CONN.

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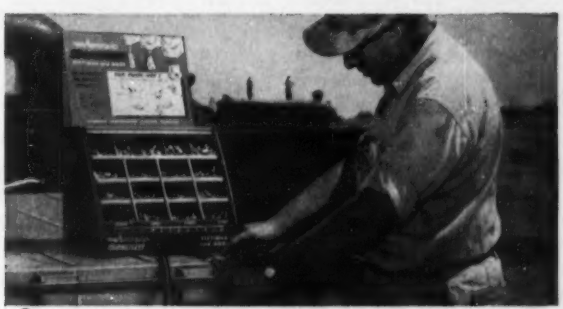

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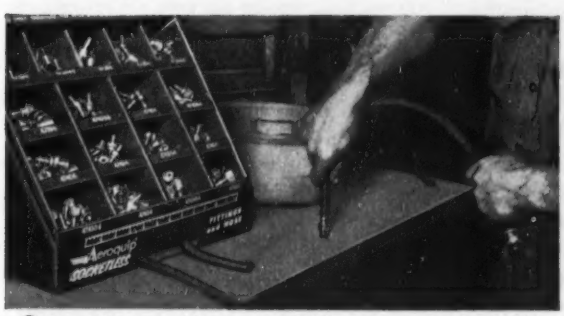

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EDITORIALS

Speed can pay dividends

MANY THINGS HAVE COMBINED to make this a great country, and it seems quite likely that an intelligent disregard of a fine old adage is one of them.

Latest example comes from the Indiana Toll Road Commission which is studying the idea of paying more for speedier construction of its turnpike in order to get toll receipts rolling in sooner (ENR Sept. 9, p 25).

The adage disregarded? "A penny saved is a penny earned". Spending a penny in the right place at the right time, instead of saving it, may well earn two pennies.

The truth of this latter statement has been recognized in the building segment of construction for many years, with factories and skyscrapers mushrooming into existence faster and faster and with increasing efficiency and economy. One of the constructive results of toll-road growth is to bring the same truth over to the highway field.

Highway contractors and engineers have shown, first on the New Jersey Turnpike and more recently on turnpikes in other states, that they too can speed up their operations. And since nothing increases efficiency as much as necessity, it is to be hoped that the necessity for building or rebuilding many thousands of miles of free highways quickly will result in speeding up normal highway work as soon as more money is available.

In this connection, worthy of note is the fact that one well-known highway contracting firm that bid on the Indiana work asked no premium for completing the job under the speed-up program. Apparently it believed that, like the turnpike commission, it is in a position to profit by getting the job done quickly.

Contractors and construction equipment manufacturers, being what they are, will respond to requests for a faster rate of production with new money-saving techniques and machines. Both construction and the whole economy will benefit.

Blast safety and public relations

BLASTING-PERMIT SUSPENSIONS on three New York Thruway contracts during one recent week (ENR Sept. 2, p.22) dramatized the precarious nature of good will toward the hurly-burly of big construction, and demonstrated the dollar value of heeding the best available advice on the use of explosives.

Contractors, understandably, were cutting rock as fast as they could in order to meet Thruway completion schedules; in their zeal they damaged property. This was not the first time such incidents had been reported. As a result, official patience snapped in three municipalities, and what had been hard-booming rock excavations became quiet, temporarily useless scars on the landscape. Time advantages slipped away while tempers cooled and contractors supported their petitions for permit reinstatements.

Key figures in the successful petitions for reinstatement were experts from the powder companies. These men are familiar with the behavior of explosives in a wide variety of rock types, and so are able to advise contractors on safe, efficient blasting procedures that will assure maximum progress in excavation. The experts also possess the growing body of knowledge about the more subtle aspects of blasting (if anything about blasting can be subtle). Outstanding investigations in this field have been made by F. J. Crandell, of Liberty Mutual Insurance Co., whose article, "Will my blasting damage property?" (ENR May 4, 1950, p.36), described the use of the accelerograph in observing blast effects under a variety of conditions. More recently Mr. Crandell has explored minutely the nature of shock waves in the ground, and made further measurements of the effects of short-period-delay blasting.

These investigations have received widespread attention, and at least one contractor is known to be using an accelerograph of his own to monitor his rock excavation. It isn't necessary to go that far in most cases, but the smart contractor will take all the advice he can get on safe use of explosives—then resist the temptation to "load her up" a little more.

That extra energy that makes rocks fly—or cracks the plaster—doesn't cut much more roadway. But it carves away large chunks of precious good will. And in some cases this loss stops the job, slows project completion and interrupts the flow of dollars into the pockets of those who live by construction.

Don't discard steel yet

MARVELOUS THINGS are being done these days in the way of changing the physical characteristics of many materials by exposing them to intense atomic radiation. Nevertheless, reports that ordinary plastics have been made stronger than steel by that method do not mean that substitutes for steel or other commonly used construction materials are just around the corner, or even just over the horizon, as some people appear to believe. In the first place, only small quantities of plastic materials have been treated in this way, and the cost can only be surmised. Secondly, even without the cost of irradiation, few plastics now are inexpensive enough to compete on a price basis with ordinary architectural and structural materials. Furthermore, because plastics are relatively new, no one knows much about their long-time physical characteristics or their usefulness as a construction material. Obviously, in the light of present knowledge, it is idle to speculate about construction applications of irradiated plastics. So don't cancel any orders for steel in anticipation of a substitute fresh out of an atomic reactor.

rigid concrete specifications here...

Views of Peribonka River Power Development.
Peribonka No. 1 Powerhouse—located at Chute du Diable, Quebec.
Owner: The Aluminum Company of Canada, Ltd., Montreal, Quebec;
Consltg. & Des. Engrs.: Shawinigan Engineering Co., Ltd.;
Contr.: Fraser-Brace Engineering Co., Ltd., Montreal.

engineers of Peribonka Power Plants employed POZZOLITH* to help meet requirements

Specifications for these important projects were rigid and exacting. Several types and classes of concrete were involved. Engineers insisted on adequate flow and workability without excessive bleeding or segregation.

Field tests showed that despite problems introduced by air-entrapping sands, Pozzolith with its adaptations facilitated production of concrete of the specified qualities, and at a cost far less than by other known methods.

Pozzolith has proved to be an effective aid in producing excellent results and important savings on major jobs across America.

We would welcome an opportunity to work with you to help obtain similar results on your jobs. More details on these and other hydraulic structures in Master Builders Reporter No. 3 —48 pages, illustrated. Copy on request.

*POZZOLITH ••• reduces unit water content up to 15% for a given placeability, and fully complies with the water-cement ratio law. Adaptations of Pozzolith permit rigid control of entrained air. Produced in three standard formulations—High Early Pozzolith, Normal Pozzolith and Low Heat Pozzolith—to give the results required under varying job conditions.

Peribonka No. 1 Spillway—located at Chute du Diable, Quebec.
Owner: The Aluminum Company of Canada, Ltd.; Engineers and Contractor same as Peribonka No. 1 Powerhouse.

Peribonka No. 2 Powerhouse—located at Chute a la Savane, Quebec. Owner and Engineers same as No. 1 Project. Contr.: Pentagon Construction Co., Ltd., Montreal.

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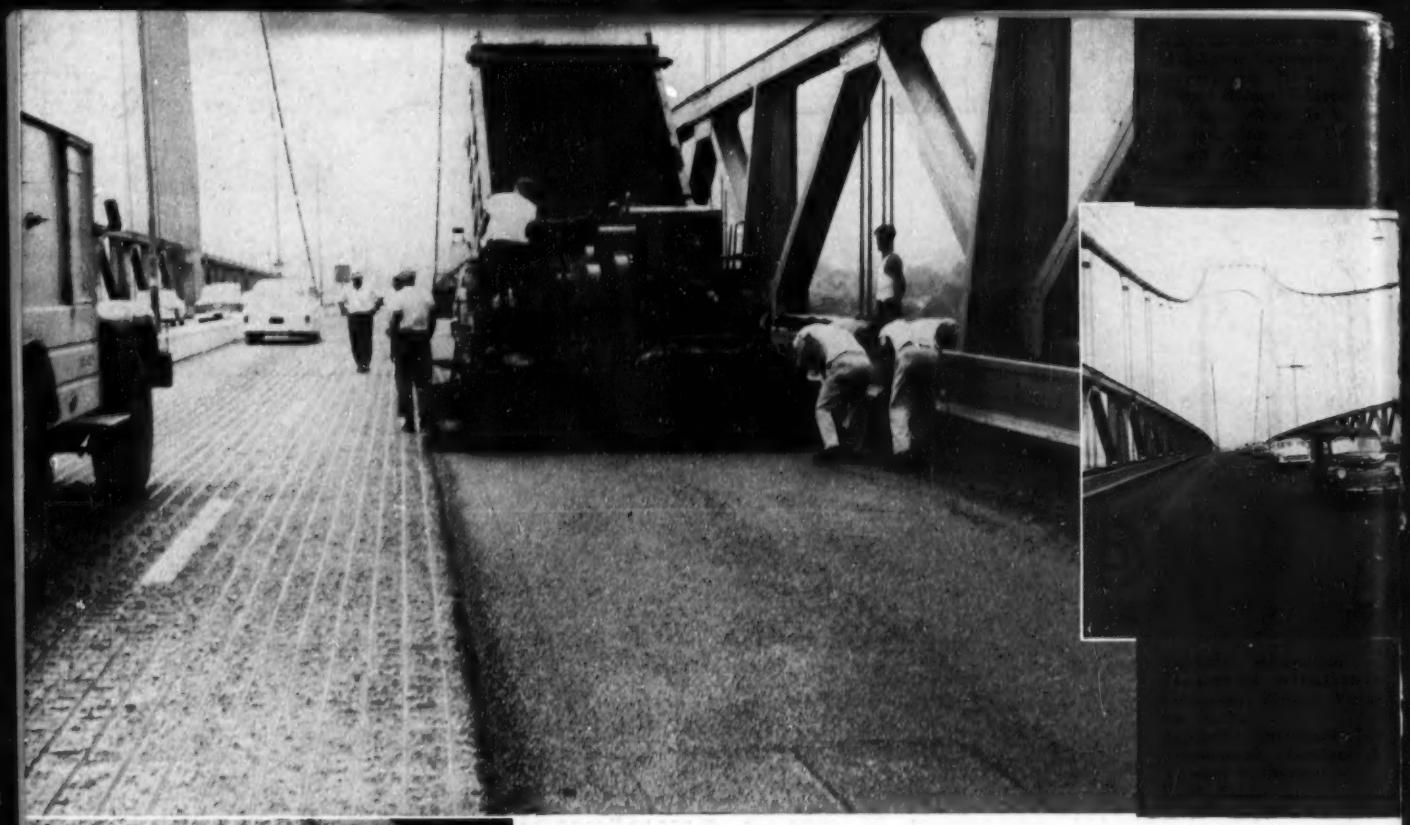

Close-up of exposed steel grid in bridge floor and the new Texaco Asphaltic Concrete wearing surface.

Spreading seal coat of asphalt-treated stone dust while the asphalt pavement was being rolled.

Traffic will average 75,000 vehicles a day on this resilient Texaco Asphalt pavement

The Bronx-Whitestone Bridge links two of New York City's five boroughs, Bronx and Queens. More than 23,800,000 vehicles crossed the bridge last year, a daily average of 65,000, with a 24-hour peak of 114,000 cars and trucks.

During July of this year, a hot-mix Texaco Asphaltic Concrete wearing surface was constructed on this bridge. Careful planning of working hours resulted in a minimum of inconvenience to traffic. Prior to laying the new asphalt surface, the existing pavement was chipped off down to the steel grid in the bridge floor, as shown by the photos. The resilient asphaltic concrete surface was then laid to a compacted thickness of $1\frac{1}{2}$ inches.

It was essential that the new pavement be opened to traffic immediately after it had been rolled. Application of a seal coat of asphalt-coated stone dust during the rolling operation eliminated any tackiness.

The answer to your own paving problem may be a heavy-duty pavement of the hot-mix Texaco Asphaltic Concrete type, or it may be one of the low-cost Texaco Asphalt surfaces designed for secondary roads and streets. Texaco Asphalt Cements, Cutback Asphalts and Slow-Curing Asphaltic Oils offer the road builder a variety of answers to the paving problem. Helpful information regarding all of these types is supplied in two booklets which you can obtain without obligation by writing our nearest office.

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